

# American Artisan

## and Hardware Record

### Sheet Metal Work-Warm Air Heating

Vol. 94, No. 1

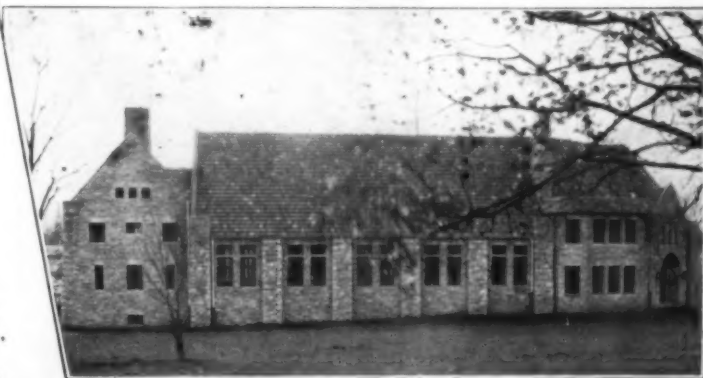
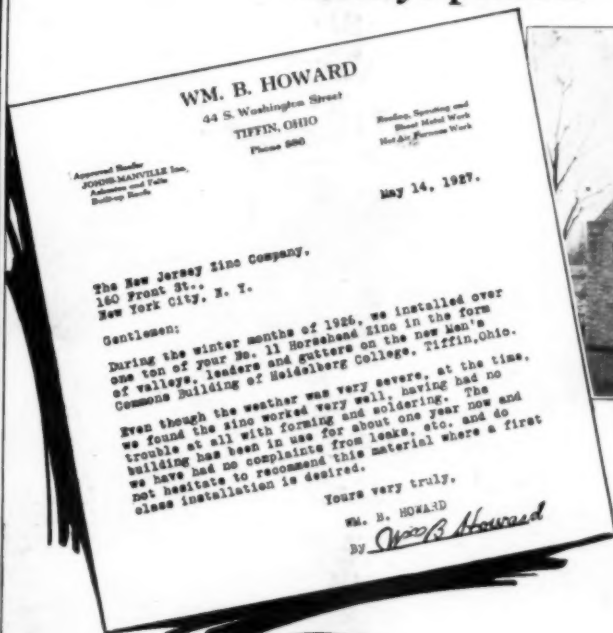
CHICAGO, JULY 2, 1927

\$2.00 Per Year

## HORSE HEAD ZINC <sup>89</sup>/<sub>2966</sub>

— always pliable

— easy to work



Men's Commons Building of Heidelberg College, Tiffin, Ohio, equipped with leaders, gutters and valleys made from Horse Head Zinc. Installed by Wm. B. Howard, Tiffin, Ohio.

### Here is the proof

Mr. Howard says, "Even though the weather was very severe at the time, we found the zinc worked very well, having no trouble at all with forming and soldering."

This is conclusive evidence of the workability of Horse Head Zinc—the zinc you have been looking for.

Send the coupon for a sample and test Horse Head Zinc yourself.



All standard shapes and sizes of Horse Head Zinc conductors, gutters and fittings are made and distributed by the following fabricators.

DAVID LUPTON'S SONS CO. . . . Philadelphia, Pa.  
THE J. M. & L. A. OSBORN CO. . . . Cleveland, Ohio.  
KLAUER MANUFACTURING CO. . . . Buffalo, New York  
HOLBROOK, MERRILL & STETSON . . . Dubuque, Ia.  
SHEET METAL MANUFACTURING CO., Inc. . . . San Francisco  
Oakland and Los Angeles, Cal.  
Brooklyn, N. Y.

**The New Jersey Zinc Company**  
160 Front Street - New York City

**THE NEW JERSEY ZINC COMPANY**  
160 Front Street - New York City

Please send me a sample of Horse Head Zinc so that I can test its easy working qualities.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7-AA

Give yourself a day for the study of  
your warm air heating business this  
month and be set for *financial*  
*independence* from then on--

*National Independence Day*

JULY						
					1	2
3	(4)	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

*Check your FINANCIAL INDEPENDENCE DAY*

**Y**OU can go on in the same old way or determine *now* to have a better business.

You can wait until your competitor has shown you or you can do it yourself.

The wisest way is to take a little time to dig into the *facts* and get your business in shape for *next season* and the *future*.

When you "take stock" this year take a little time to take stock of the things you haven't got also.

You know that warm air heating is *on the up*.

You know that quality installations and quality furnaces are easier—*yes easier*—and more profitable to sell than any other kind.

It's quite true that you probably haven't found it so yet *but*—if you are one of the higher

type dealers doing good installation work and operating a business-like business the fault is probably the lack of a furnace that you are *absolutely sold on*, and that fits into a quality installation program.

That's where the Weir comes in—Weir dealers are successful because the Weir is a recognized high class furnace and because its quality and design enable them to be enthusiastic about it.

Our Weir "Book of Facts" gives the plain facts about the Weir.

It's a book that you should include in your day's study of your heating business.

Write for it now or if you desire we will be glad to send a Weir representative to help you study your furnace business.



**The MEYER FURNACE CO.**

Peoria, Illinois



## This is the Waist High Shaker

**N**OW optional equipment on all SUPERIOR Furnaces — SUPER-SMOKELESS as well as the regular line — operating flat grates with amazing ease. This type of grate is preferred by many dealers and home-owners.

But whether you give your customers the flat grate with waist high shaker, or the revolving, triangular grate, you insure them a dust-proof ashpit because of the frameless door; the feed door construction is also frameless; and direct connected cleanout, large humidifier, and other talking points too numerous to mention.

It is just such features as these, plus the carburetor on the SUPER-SMOKELESS Furnace, that make the SUPERIOR Line so easily sold and so profitable to the dealer.

Utica Heater Co., Utica, N. Y.

Makers of Superior Pipe and  
New Idea Pipeless Furnaces

365 E. ILLINOIS ST.

CHICAGO, ILL.

**SUPERIOR  
SUPER-SMOKELESS  
WARM AIR FURNACE**



**WRITE** us for interesting details of our Sales Development Plan, with full particulars of the SUPER-SMOKELESS Furnace and its double combustion — burning all fuels smokelessly and with great efficiency.

**SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL ---- WHY?**

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.  
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.

1228 3/I/29



# STEEL STEEL STEEL STEEL STEEL!

Skyscrapers — railway coaches — steamships — automobiles — household furniture — office furniture — partitions — roofs — bridges — even reinforcing for the concrete highways over which you ride in comfort and hundreds of other things are made stronger, safer and more durable through the use of STEEL.

STEEL furnaces are no exception. The tremendous increase in the sale of steel furnaces is in trend with the times. We predict that in a very few years the cast furnace will be as obsolete as the wood girder in office building construction.

If you haven't already guessed the moral—here it is—eventually you are going to sell steel furnaces if you are not doing so now, but don't take a chance with any old furnace just because it is made of STEEL.



*This book is chock-full of selling ideas. Every furnace dealer should have one. It's free—write for yours.*

"AFCO" is one of the pioneer builders of Boiler Plate Steel Furnaces. For more than 20 years they have given exceptional service and won success for the dealers who sell them.

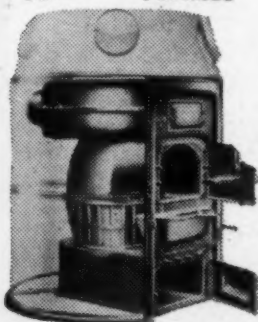
Get the facts on all the STEEL furnaces and then we are sure you will want to sell the "AFCO." A letter or postcard will bring you full "AFCO" information without obligation. Address—American Furnace Co., St. Louis, Mo.

## Meeting the Needs of the Western Furnace Dealer

YEAR after year "Standard Line" dealers multiply in number and increase their percentage of the available business. This is mostly due to the completeness of "Standard Service."

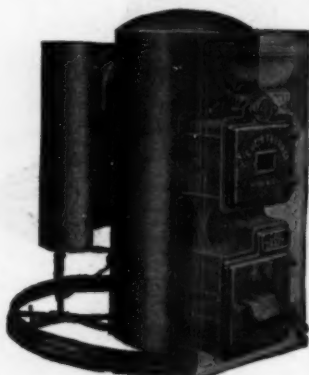
*For Instance:* From what other source can the Western Dealer obtain such complete selection of modern Warm Air Heaters as the Nesbit; Weir and Stanco Furnaces, 9 styles, and 47 sizes, in all.

*Nesbit* Moist Heat Furnace



Where else can you send an order for all of the following national brands and be assured of having your order filled complete?

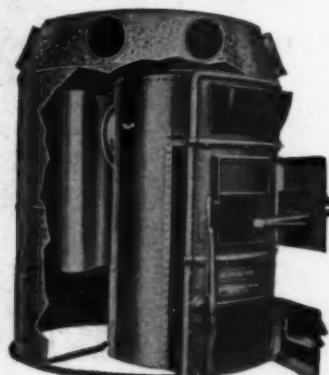
HANDY PIPE AND FITTINGS  
"NO STREAK" REGISTERS  
H & C—170-190 SERIES REGISTERS  
STANCO REGISTERS  
WISS SNIPS  
PEXTO TOOLS  
MAJESTIC CHUTES AND REGISTERS



WEIR STEEL FURNACE

Also the staple lines such as steel and semi steel Registers; Wood Grille; Whitney Tools; Asbestos Paper and Paste, etc., etc.

*In fact we have everything for the Furnace-man.*



STANCO STEEL FURNACE

**STANDARD FURNACE & SUPPLY CO.**  
OMAHA, NEBR.

Mention AMERICAN ARTISAN in your reply—Thank you!



# For Proof of Greater Furnace Value Put Your Rule on The **RYBOLT!**

COMPARISON of dimensions tells the story of the greater value offered by the Rybolt Warm Air Furnace, and your own measurements will prove it.

When words fail and the last claim has been made, *your rule* will settle the question.

## MAKE THIS TEST FOR YOUR OWN INFORMATION AND SATISFACTION

SEND for a copy of the Rybolt catalog. When it arrives turn to page 19 on which you will find a table of dimensions, weights and capacities of Rybolt furnaces.

Select any size of Rybolt furnace and compare the dimensions of the different parts with those of any other make of furnace of the same rated size which you may happen to have on your floor; then draw your own conclusions.

We guarantee that the dimensions given in our catalog are the actual sizes of the different parts to which they refer.

You can prove this by ordering a sample Rybolt Furnace and measuring it yourself.

As a practical furnace man you can appreciate that the larger grate areas, full fire-pot sizes and larger area of heating surfaces of Rybolt furnaces mean greater heating capacity, and therefore greater value.

Write for the catalog today  
—a post card will bring it.

**The RYBOLT  
HEATER CO.**  
ASHLAND, OHIO

ANOTHER  
**RYBOLT**  
FURNACE

# ROBINSON STEEL FURNACE

Made of  
TONCAN COPPER  
MO-LYB-DENUM IRON  
Fortified against  
RUST AND CORROSION



## Designed According to the correct Rating Formula---

THAT means that it is an up-to-date furnace—not only built sturdily of the highest quality material but designed to render the highest heating efficiency.

Notice that there is plenty of room for cold air return and easy flow of air over radiating surfaces.

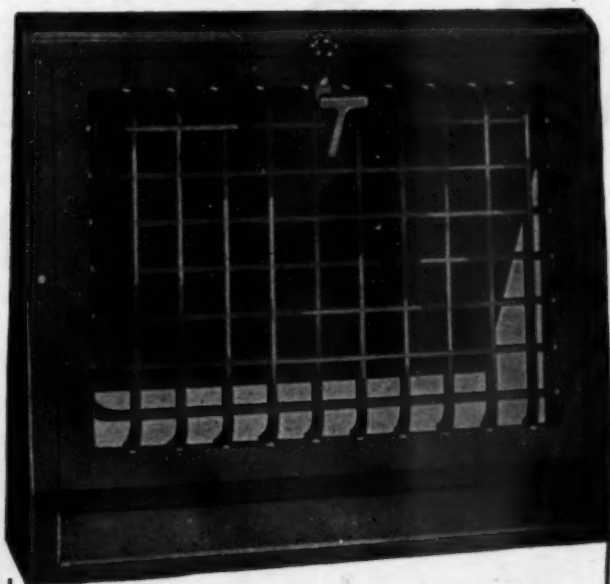
The ROBINSON is Electric Welded Throughout to insure absolute leak proof construction. It is furnished with one or two outlets as desired.

Notice that the radiator is supported independently—no weight on furnace drum.

New Dumping Device—One Piece Circular Grate—large water pan—lever shaker handle, and Shipped with front assembled are other features that you will appreciate.

The agency for the Robinson Steel Furnace means steady profits on a reliable furnace—write today for full details.

**The A. H. ROBINSON COMPANY**  
MASSILLON, OHIO



## Have you seen it? WALWORTH New Standardized STYLE B Baseboard Register

NOT only made throughout in accordance with the rules of the Standardization Committee but it is the *neatest* durable register ever made to sell at a popular price.

Simple, easy and accurate in operation, cast face made of the best iron, finished in all the popular finishes and made in the following sizes:

8x10	inch	2 1/4	base	extension
8x12	"	2 1/4	"	"
9x12	"	2 1/4	"	"
10x12	"	3 1/4	"	"

Study the features of this new register.

Write today for full particulars and prices on the Walworth New Standardized Style B Baseboard Register.

Order some for that next job—your customers will want them.

Made by the makers of Walworth Double Gratings, Semi-Steel Registers, Side Wall and Floor Registers, Ventilators, Borders and Casings Rings.

## THE WALWORTH RUN FOUNDRY COMPANY

West 27th Street and N. Y. C. & St. L. R. R., Cleveland, Ohio

Distributors:

ROBINSON FURNACE CO., Chicago, Ill.

HAET MFG. CO., Louisville, Ky.

PHILLIPS & BUTTOREFF MFG. CO., Nashville, Tenn.

Eastern Representative:

PENN TINSMITH'S SUPPLY CO., Philadelphia, Pa.

# BOOMER

**T**HIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

The severe tests we have given this furnace have proven its durability. The unsolicited reports we received from users last winter have been most flattering.

For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

**THE HESS-SNYDER CO.**  
MASSILLON, OHIO

Makers of BOOMER FURNACES for Forty-Three Years



*The*  
**OLDEST**  
*and*  
**LARGEST**  
**STOVE, FURNACE & BOILER**  
**REPAIR HOUSE in the COUNTRY**

*Try Our Service*

**The Northwestern Stove Repair Co.**  
**CHICAGO**

*Eaglesfield* **EXTRA HIGH GRADE WOOD FACES**

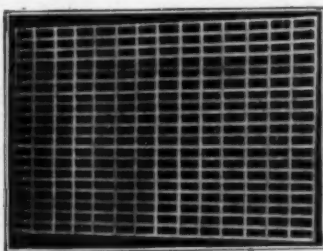
MADE by special machinery. Finest white quartered oak and High Speed Ball Bearing mechanism insures perfect construction. Specially designed grooving saw cuts all grooves exact size. Eaglesfield Wood Faces are stronger than others—the cross pieces are 1/16 inch deeper than those used in other faces.

Single orders or carloads promptly at fair prices. Write today.

**EAGLESFIELD VENTILATOR CO.**

918 DORMAN STREET

INDIANAPOLIS, IND.



# REX GAS FURNACE UNITS

*Highly Efficient*

**R**EX Gas Furnace Units are designed to render the utmost in economical heating service.

Made in three sizes—they may be used for heating factories, store-rooms, or can be made into any kind of Gas Furnace—Viz.: Pipe, Pipeless, Twin or Auxiliary furnace.

The No. 380 illustrated has two 20-inch burners and pilot, and will heat 5 to 7 rooms

**REX FURNACE UNITS BURN EITHER NATURAL OR ARTIFICIAL GAS AND ARE SOLD WITH OR WITHOUT CASINGS.**



No. 380 Unit

Write today for complete catalog

**W**RITE today for our booklet which tells all about Rex Gas Furnace Units and Rex Gas Furnaces—ask about the agency for your territory.

**CALKINS & PEARCE**

751 East Long St.

Columbus, Ohio





**Traveling East or West**

A restful night on beautiful Lake Erie—to or from Niagara Falls, will add enjoyment to your trip.

Palatial steamers—Unlimited facilities, including large airy state-rooms, excellent dining room service.

Daily May 1st to November 14th—Each Way Every Night between

**Cleveland and Buffalo**

Leaving 9:00 p. m., arriving 7:30 a. m. (Eastern Standard Time)

Write for new Steamer Schedule between Cleveland and Buffalo via ERIE during July and August

Connections at Buffalo for Niagara Falls, Eastern and Canadian points. Connections at Cleveland for Cedar Point, Put-in-Bay, Toledo, Detroit and points West.

Our new 32-page Tourist Guide with complete information and maps will be mailed free—on request.

Ask your ticket agent or tourist agency for tickets via C & B Line. Your rail ticket is good on our steamers.

The Cleveland and Buffalo Transit Co.  
Cleveland, Ohio

FARE \$5.50

New Auto Rate \$5.00 and up



**"American Seal"**

**FURNACE CEMENT**

**Roof Cement — Stove Putty**

**Plumbers Putty**

**PAINTS and SPECIALTIES**

**WILLIAM CONNORS PAINT MFG. CO.**

TROY      Established 1852      NEW YORK

JAMES L. PERKINS  
Western Distributor  
140 S. Dearborn St., Chicago, Ill.

**PATTERNS FOR STOVES AND HEATERS**

THE CLEVELAND CASTINGS PATTERN COMPANY  
CLEVELAND, OHIO

**PATTERNS**

FOR STOVES AND HEATERS      FIRST-CLASS  
IN WOOD and IRON

VEDDER PATTERN WORKS      ESTABLISHED 1833      TROY, N. Y.

**IRON AND WOOD**

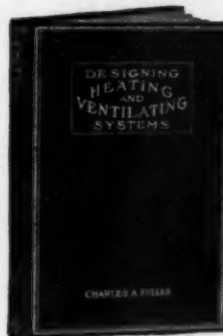
**STOVE PATTERNS**

QUINCY PATTERN COMPANY  
QUINCY, ILLINOIS

## Books to read Now!

245 Pages,  
6x9 ins.

89 Figures—  
Cloth, \$3.00



### Designing Heating and Ventilating Systems

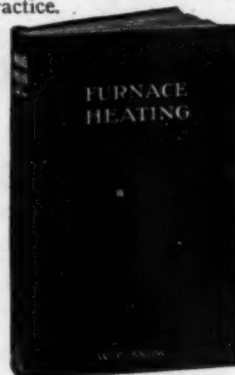
By  
**Charles A. Fuller**  
Consulting Engineer

THIS new edition, treats the practical application of engineering rules and formulas in every day use, in laying out steam, hot water, furnace and ventilating equipment for buildings of all kinds, presented in a simple manner.

This book explains the heat unit, foot pound and similar measures in such a way that the less technical mind can readily understand and apply them.

It also explains in detail exactly the same methods that the leading engineers use in determining the sizes and proportions of equipment in every day work. The quickest and easiest methods of determining the proper amount of radiator surface for a room or building of any size are described.

Plumbing and Heating Contractors will find it an invaluable reference book. Every phase of Heating and Ventilating treated is developed along the lines of the most recent practice.



258 Pages,  
6x9 ins.

77 Figures—  
Cloth, \$3.00

### Furnace Heating

By  
**William G. Snow**

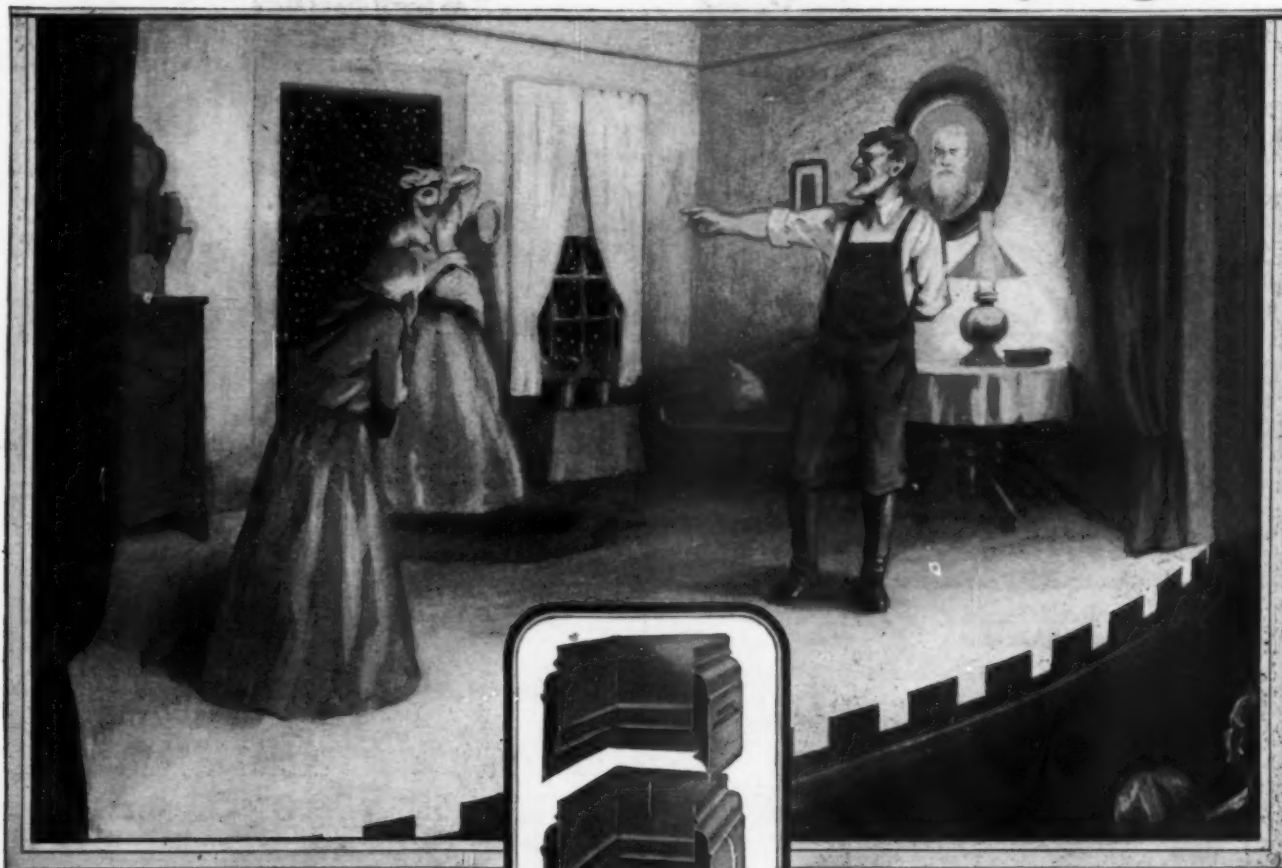
Member: American Society of Mechanical Engineers; American Society of Heating and Ventilating Engineers

THIS practical book deals with the different types of furnaces, their design, construction and proper installation, including warm air, combination heating systems, also covering the main features of the one pipe or pipeless furnace.

The author explains in simple English practical information on heating and ventilation of school and public buildings, churches, stores, etc. He also covers the setting up of furnaces, and describes all types of furnace fittings.

**AMERICAN ARTISAN**  
620 S. Michigan Ave., Chicago, Ill.

*"It's a-snowin' - - but out ye go!"*



**P**OOOR little daughter! One mis-step and the hard-hearted father turned her out in the cold, forgetting her many years of upright living before the villain came on the scene. It was a "raw deal," but that's the way it went in the old-time "melodrammers," and that's the way it goes in business.

It's only human nature for folks to pounce upon our mistakes and failures, forgetting the good work we have done. But so it goes, and that holds for furnace installations, too.

No dealer is fair to his years of hard work and his reputation if he takes chances on the quality of his pipe and fittings. It's true, they are but a small part of the job as a whole, but that they function efficiently and dependably is vital.

The news of an unsatisfactory job spreads far faster than that of a satisfactory one and dissatisfaction is often caused by only a little thing being wrong or going wrong. So, in the long

run, (and we are all in business for the long run), it pays to standardize on known quality.

LAMMECK Simplified Pipe and Fittings ARE known quality—with 25 years of hard effort behind them and a reputation that has made our plant the biggest of its kind in the world.

This plant is always ready to go to work for you—in the right way—at the right prices. No one can buy or make better heating equipment for a penny less.

Give this quality to your customers—every time!

THE W. E. LAMNECK COMPANY, 416-432 Dublin Ave., Columbus, Ohio

Western Representative: THE QUICK FURNACE & SUPPLY CO., Des Moines, Iowa

**LAMNECK** SIMPLIFIED  
PIPE AND  
FITTINGS

{NOTE: Write for  
catalog and prices.  
Samples of our  
own manufactured  
products free for  
the asking.}

Say you saw it in AMERICAN ARTISAN—Thank you!

Founded 1880

Published to Promote  
Better  
Warm Air Heating  
and  
Sheet Metal Work

# American Artisan

and Hardware Record

## Sheet Metal Work-Warm Air Heating

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Canada .....\$3.00  
Foreign .....\$4.00

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### Presented in This Issue

*In this issue AMERICAN ARTISAN presents to its readers the complete addresses of R. W. Menk and J. C. Miles on fans and their operation which were made at the recent meeting of the Western Warm Air Furnace & Supply Association held at Peoria, Illinois. In addition to these reports there is also presented some comments on the fan discussion both pro and con by men in the trade. Constructive comments on this subject will be appreciated.*



# The 4th of July and the Thatcher Tubular Furnace

are both "Celebrated"

INDEPENDENCE DAY is celebrated with its exploding fire-crackers, swishing sky rockets and whirling pinwheels—features that are forgotten a few weeks afterwards. Not so with the "Celebrated" Thatcher Tubular Furnace in the house. Day in and day out, through the long cold winter, the Thatcher Tubular gains its title of "Celebrated" because of its high heating efficiency at low fuel costs and minimum of attention.

The greatly increased radiating surface by reason of the "porcupine" fire-pot, together with the tubular construction of the combustion chamber, speeds the heated air into the rooms above before it is scorched or burnt, assuring ample and healthful heat even on the coldest days.



*These and many other selling features of the Celebrated Thatcher Tubular Warm Air Furnace are easy to demonstrate to home owners and builders. Write for illustrated and descriptive literature, together with trade information.*

## THE THATCHER COMPANY

Since 1850

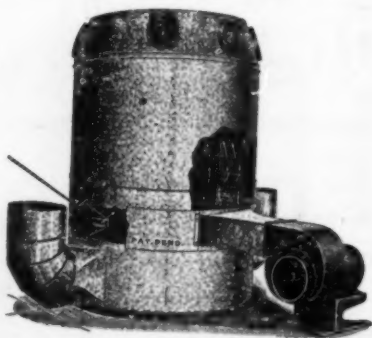
CHICAGO  
341 N. Clark St.

NEWARK, N. J.  
39-41 St. Francis St.

NEW YORK  
21 W. 44th St.

# THATCHER

BOILERS-FURNACES-RANGES



Note how the air is blown directly against and over the heated surfaces. This is the secret of the splendid results that have been obtained with the Heat-O Booster—it picks up four times the usual number of heat units and guards against castings becoming overheated.

# SELL BETTER WARM AIR HEATING

WITH THE



LINE

**A**N Outstanding Feature of HEAT-O BOOSTERS, Is Their Quiet Operation.

HEAT-O BOOSTERS open a wonderful field for the furnace industry to sell better warm air heating. To furnace Manufacturers—Jobbers—Dealers—the HEAT-O LINE is as important as the automobile is to transportation. It boosts in more ways than one—every job with a HEAT-O BOOSTER means a new friend for warm air heating. Not merely for large and unusual jobs, these boosters fit the average installation as well. Installers of HEAT-O BOOSTERS can positively guar-

## BUILT TO FIT ANY WARM AIR FURNACE

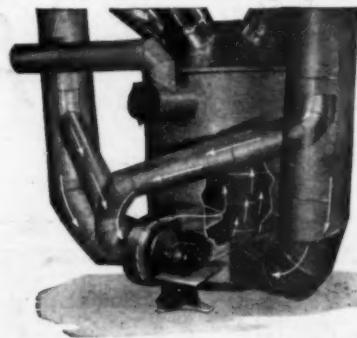
There is a HEAT-O BOOSTER for every type and style of furnace—cast or steel. Boosters are operating efficiently in connection with various makes of well known furnaces—Thatcher, Utica, Robinson, International, Gilt Edge, Moore Bros., Holland, Mueller, Premier, Round Oak, Rudy, Richardson & Boynton, Cribben & Sexton, Weir, Torrid Zone, Marshalltown, Success, Colburn and many others. And these jobs all work!

Designed and constructed by leading furnace heating engineers

antee quick, constant heat, actual fuel savings of 10 to 60 per cent, longer life to the heating plant—elimination of forced firing, etc. No guess work where HEAT-O BOOSTERS are installed. The public is ready for this remarkable development in warm air heating—people will pay more for HEAT-O fan-furnace work—they take no chances—neither do you. The HEAT-O LINE has proved its real worth in hundreds of installations. Scientifically correct—with outstanding features found in no other line of furnace fans.

—whose aim has been to elevate the warm air industry to a high plane—the HEAT-O LINE, besides being scientifically correct, is made only of the best materials, will give many years of honest, economical service. Get the facts about this profitable business-builder. Our organization is at your service—engineering help free—no obligation. Don't hesitate to test our claims. The HEAT-O LINE will do all we say it will, and more.

Write today for full particulars.

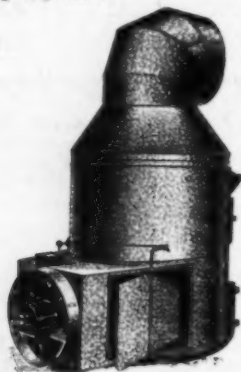


The Heat-O Booster draws cold air directly from the rooms or from the return air pipes. Air is discharged directly and uniformly against the hottest part of the furnace, extracting more heat units. When the return air rises the Heat-O Booster shoots it up into the casing, through the leaders with sufficient force to overcome any resistance or cold air pressure.

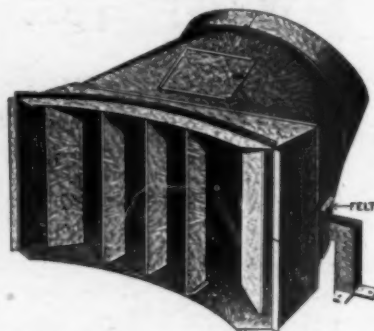
**H**HEAT-O UNIT HEATERS. The Finest System for Heating Churches, Schools and Garages.



*Style A Booster. An original idea, by far the most advanced step in furnace-fan heating. Shipped complete—nothing to get out of order—merely hang it inside the casing or cut a slot in it to install the booster.*



*Style H Unit Heater—a direct-fired unit with propeller type of fan. An ideal system for churches, schools, shops, factories, garages, etc. Big sales possibilities.*



*Style C Booster. A propeller furnace-fan—the equal of anything on the market because it creates less turbulence and better air distribution in the furnace casing.*

# ROBINSON FURNACE COMPANY

205-7 West Lake St.

HEATING SYSTEMS DIVISION

Chicago



# American Artisan and Hardware Record



Vol. 94.

CHICAGO, JULY 2, 1927

No. 1.



New and Attractive Warm Air Heating and Sheet Metal Window Display in the Sales Room of William F. Wahler, 3715 Elston Avenue, Chicago. The Small Picture Frame in the Center of the Window Contains a Photo of Col. Lindbergh. Note the Sheet Metal Cornice Above the Awning, Also the Old Window at the Store in the Extreme Left and See the Contrast

## Warm Air System Solves Heating Problem in Chicago Wheel and Spring Works

*William F. Wahler Finds Attractive Window  
Display and Sales Room Brings Business*

By GEORGE J. DUERR

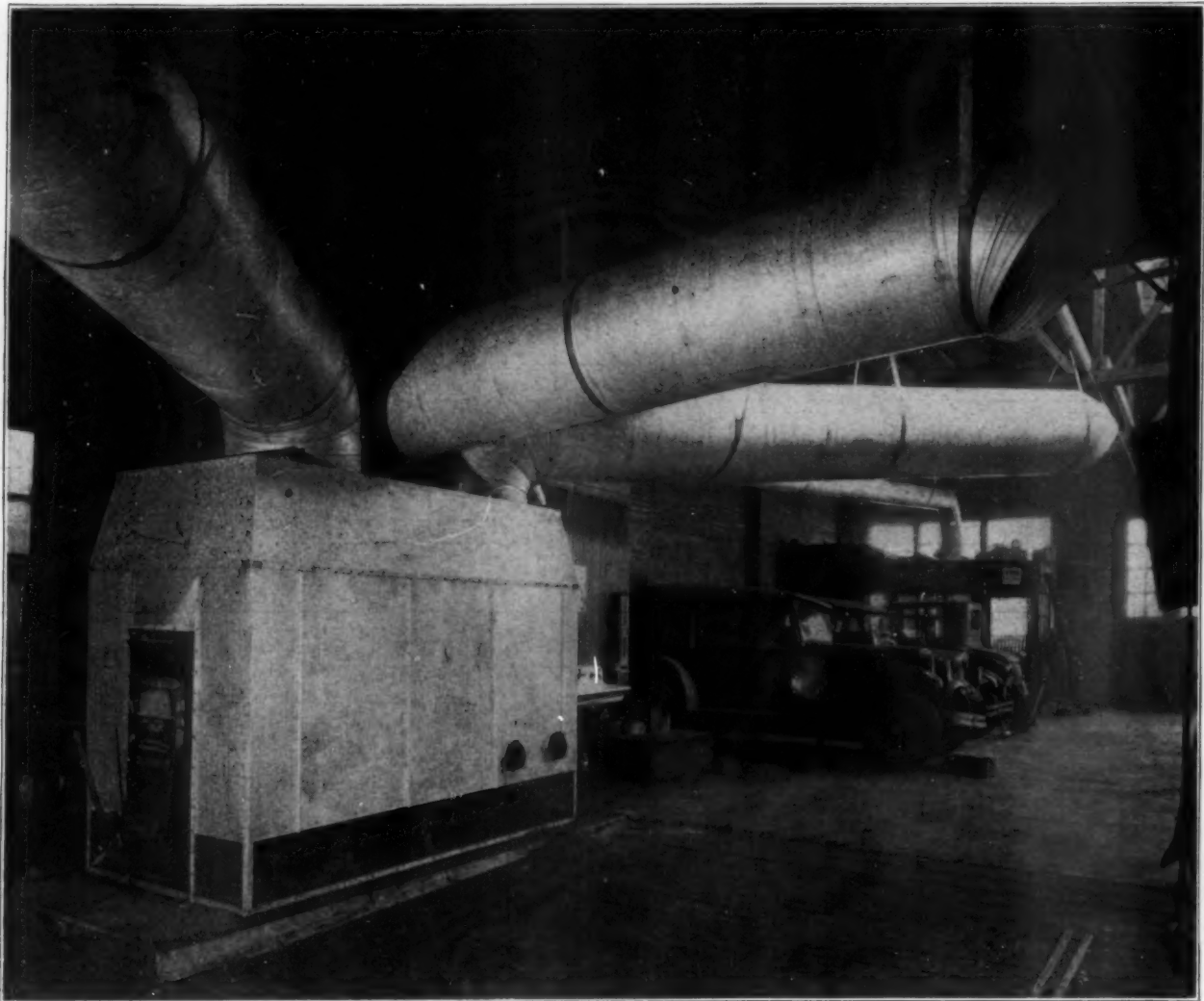
**T**O CONVINCE a man that he needs a warm air heating system when he has his mind all made up that he wants a hot water heating unit is the task of no ordinary salesman, but that is exactly what William F. Wahler, warm air furnace installer and sheet metal contractor, 3715 Elston Avenue, Chicago, Illinois, did in the case of Robert Binder, 3640 North Central Park Avenue, Chicago. From that you immediately draw the conclu-

sion that Mr. Wahler is no ordinary salesman, and you are exactly correct in coming to that kind of a conclusion.

Mr. Wahler is one of the most progressive sheet metal and warm air furnace men in the city of Chicago. That is saying considerable, but anyone who takes the opportunity to visit his shop and salesrooms cannot fail to become enthusiastic over this modern furnace man's up-to-date ideas.

In the first place Mr. Wahler has a salesroom and display window that will vie with any of the downtown automobile sales windows for attention. Into this window he has not thrown a lot of sheet metal objects indiscriminately. Its arrangement is studied. The floor of the window is made of matched hardwood and varnished. A good quality of plate glass has been used and is set into an attractive copper-colored framework. This glass is





Warm Air Heating Installation in the Factory of the Ernst M. Schneider Wheel and Spring Works, 3522 North Clark Street, Chicago. Note the Long Run Which Heats the Office and the Openings for the Cold Air Return

kept washed at all times.

In one end of the window there flourishes a large Boston fern. In the center of the window are placed sheet metal and warm air furnace objects. Some of these are in miniature, others are in their natural sizes. This window is changed often.

Contrary to the general opinion that it is very difficult to make an attractive sheet metal and warm air furnace window display, Mr. Wahler has succeeded beyond the most optimistic expectations. At the time I saw the window it contained among other things a very attractive sheet metal frame such as might serve for a picture frame. On this frame there were hung numerous sheet metal objects, such as gutters, downspouts and hangers. This frame can be seen in the accompany-

ing illustration of the booth which Mr. Wahler staged at a recent neighborhood trade exhibition.

Making use of another very valuable sales adjunct that has found its way into every progressive retail merchant's window, Mr. Wahler had a rotogravuer picture some twelve or fifteen inches high of Charles A. Lindbergh standing near the Spirit of St. Louis, neatly fitted into a sheet metal frame and standard and placed near the forepart of the center of the window—a sure eye catcher.

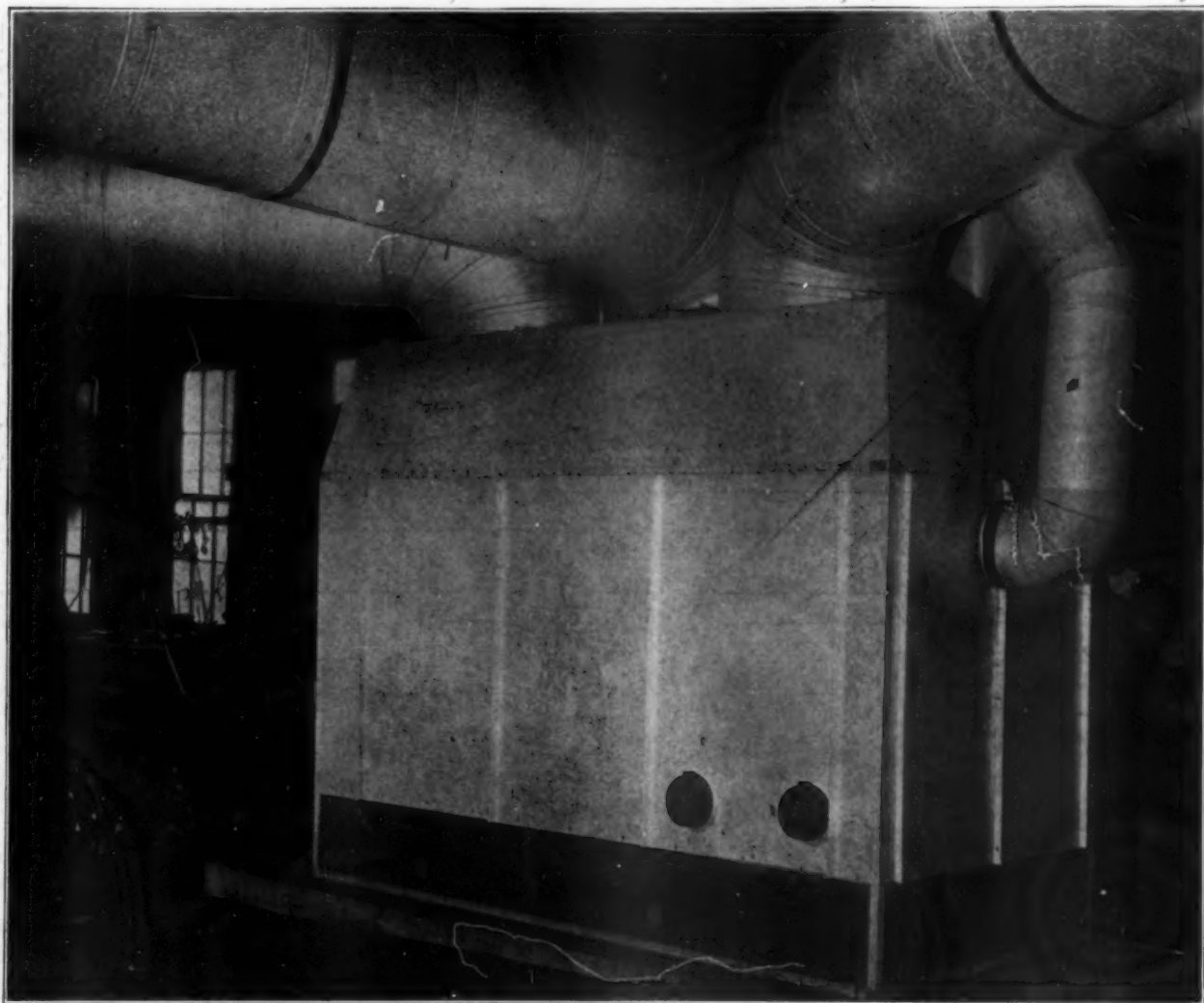
The salesroom, too, is arranged in the same attractive manner, as is the sales window. The ceiling and the walls are conservatively and attractively decorated. The floor is varnished and its center is covered with a large domestic rug. Two or three comfortable reed rockers are

placed strategically around the room.

In one corner is located Mr. Wahler's desk. In another corner of the room the stenographer's desk is located, while in the third corner of the salesroom Mr. Wahler has placed a large warm air furnace fully cased and connected to the chimney so that it can be fired for demonstration purposes. This furnace is used for heating the workshop during the winter months. It has one large cold air pipe that comes through the partition between the salesroom and the workshop.

The bonnet of the furnace tapers off into one warm air duct which runs out along the ceiling of the workshop where it is divided in such a way as to direct the air to all parts of the workshop. The furnace is equipped with a Miles fan.

This attractive salesroom and



Another View of the Warm Air Heating Installation in the Ernst M. Schneider Wheel and Spring Works. This Installation, Made by William F. Wahler, 3715 Elston Avenue, Is Said to Be the Only One of Its Kind in the City so Far

window display is not the only evidence that Mr. Wahler is a progressive sheet metal contractor. At a recently held neighborhood trade exhibit, the accompanying illustration shows the type of booth which Mr. Wahler staged. The same neatness with which this booth has been arranged is displayed throughout the window display and salesroom.

Two of the illustrations herewith presented show the interior of the factory of the Ernst M. Schneider Wheel and Spring Works, makers of automobile wheels and springs, located at 3522 North Clark Street, Chicago, Illinois. The warm air heating system shown was installed by William F. Wahler. It is said to be the only one of its kind in the city of Chicago thus far and Mr. Wahler considers it a distinct honor to be the installer of it.

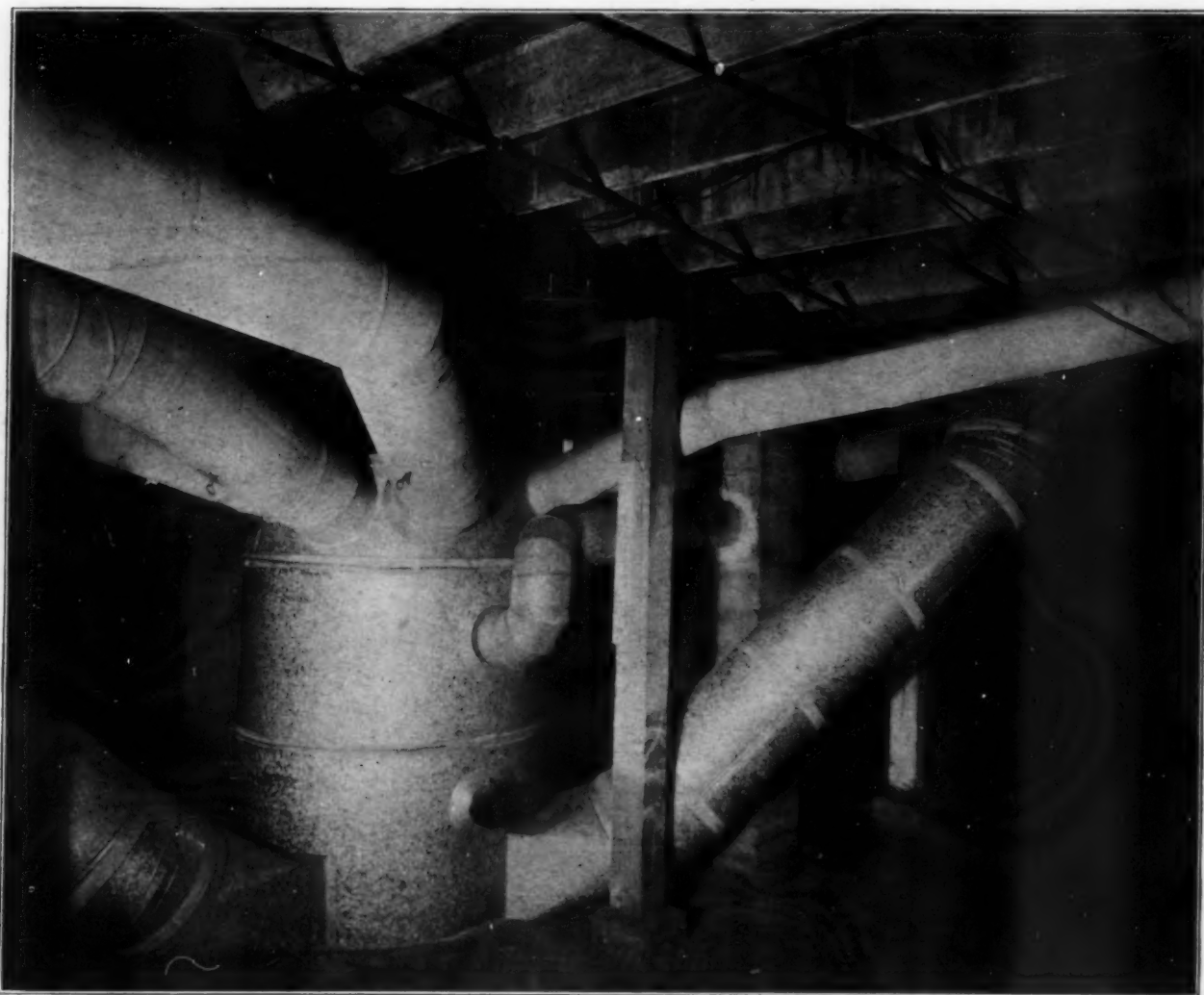
Mr. Wahler keeps abreast of all association activities that directly concern him. He is an associate member of the National Warm Air Heating and Ventilating Association, a member of the Cook County Sheet Metal Club; in fact, he was one of the organizers of this club and is very active in its affairs.

Sheet metal and warm air heating contractors of the Wahler stamp are men of ability in both the sales and manufacturing ends of the business. They are the men who are placing the sheet metal and warm air heating industry on a higher plane than it has ever before enjoyed. They neglect no legitimate opportunity to further the interests of the industry of which they are a part.

In the Robert Binder seven-room installation case, Mr. Binder,

as mentioned above, was all set to install a hot water system. Mr. Wahler learned of his intention and went over to see him. After talking to him for a while and trying to learn why Mr. Binder had decided on hot water, Mr. Wahler so thoroughly presented his case in favor of warm air heating in preference to hot water by an adroit use of the data which has been released from the University of Illinois and the Standard Code that Mr. Binder signed up for the warm air system without hesitation. He fully realized that an industry having the facts about its products and services so well in hand must surely know its business and decided that that was the type of industry with which he wanted to tie to.

In this instance Mr. Wahler has given a very excellent demonstra-



Warm Air Heating Installation in the Home of Robert Binder, 3640 North Central Park Avenue, Chicago, Made by Mr. Wahler and Taken Away From the Hot Water People. Note the Easy Bends in the Cold Air Boots

tion of what can be done when the warm air heating man really goes out and tries to learn as much about his business as he can and then uses this information when making sales of warm air systems.

Any furnace installer or sheet metal contractor wishing to get a real inspiration should make a visit to the place of business of Mr. William F. Wahler. He will surely learn a lot.

## ***National Sheet Metal Trade Development Reference Book Nearing Completion***

***Secretary's Office Now Receiving Applications for Copies of Book***

**T**HE Trade Development Committee of the National Association of Sheet Metal Contractors of the United States has progressed to a point now where they are ready to fill orders for the Encyclopedia and Reference Book for sheet metal work of every description in prepa-

ration.

This book will consist of no less than 500 pages, showing construction, erection and specification of sheet metal work, such as metal cornices, warm air furnaces, skylights and ventilators, blow pipe and exhaust systems, heating and ven-

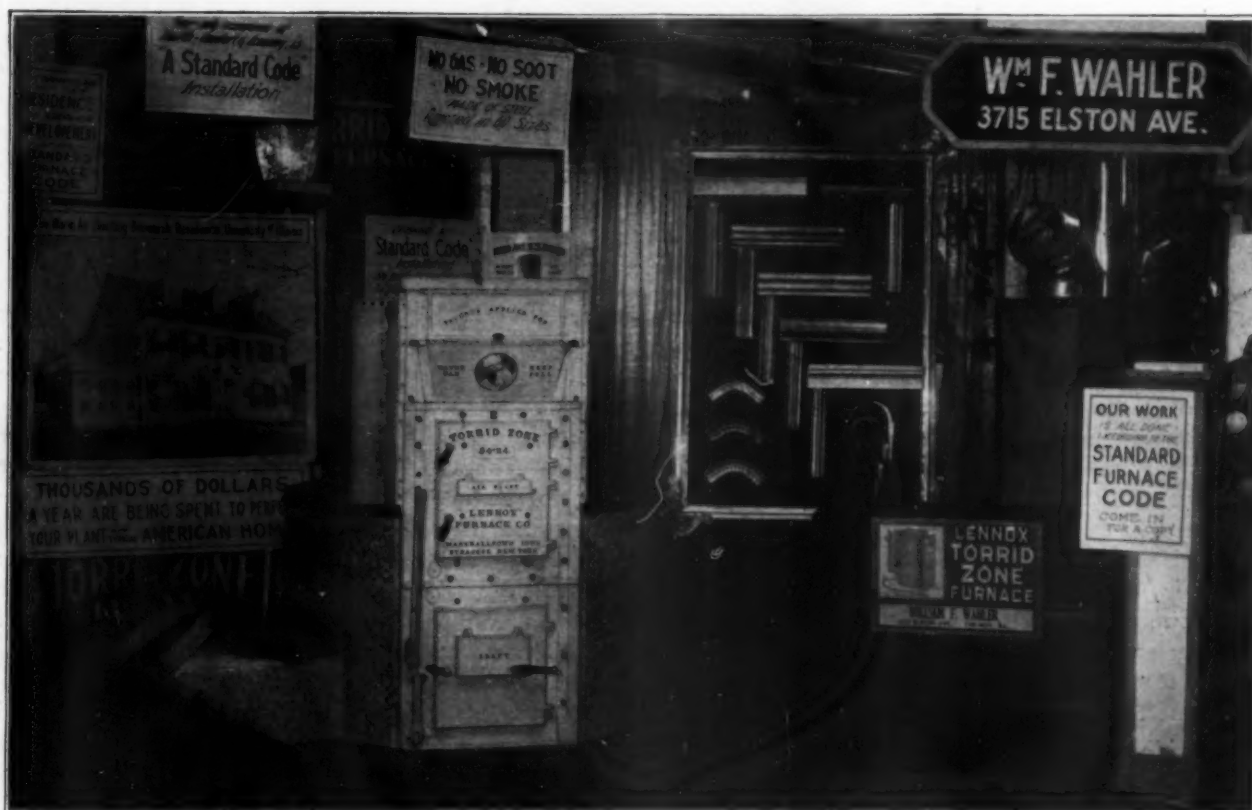
tilating systems, metal doors and trim, roofing, gutters, conductors, flashing, etc., metal ceilings, restaurant, kitchen and hotel equipment, fire doors, metal windows, metal garages, corrugated iron work.

A report on the progress of this work was made by the chairman of the committee at the Dallas convention in April. Excerpts of this report as given are as follows:

**To the Members of the National Association of Sheet Metal Contractors**

"Herewith give you a short synopsis of what this report contains. In the first place it was shown that the committee has now spent in excess of \$20,000 and that it will take at least \$5,000 more to prepare everything ready for the printer, with probably \$20,000 or \$25,000 more to print the first issue of 5,000 books, making the total





A Warm Air Heating Display Which Mr. Wahler Staged Recently at a Neighborhood Trades Exhibition. Note Photo of Research Residence and Prominent Mention of the Standard Furnace Code

expense at that time about \$50,000.

"This is a very large amount for an association to provide, but it was shown that data for the different sections of the book is about all in hand, drawings, specifications, etc., all completed, the book should be ready for distribution within the next year.

"The convention demonstrated by its action that they were highly pleased with the progress made so far, and statements were quite generally expressed that this Encyclopedia and Reference Book will very materially increase the use of sheet metal, thereby in a general way, help the industry.

"It was shown by the committee that \$10 must be charged for each book, and if the remarks made by many of those in attendance are any criterion of the future sale, then we should have no trouble to dispose of at least 10,000 books.

"Here name a few who already gave their order for books during the meeting.

"Chas. N. Louis said: 'Peoria, Illinois, will take 24 books.'

"Mr. Fox of Birmingham, Ala-

bama: 'Put us down for 20 books and probably many more.'

"Geo. I. Ray of Charlotte, North Carolina: 'Tri-State Association will require 200 books.'

"Wm. G. Harms of Rock Island: 'Rock Island will take at least 10 books.'

"Harry Dettmers of Chicago, Illinois: 'Put us down for \$1,000, and we will furthermore duplicate any amount paid by other associations.'

"Harry Stanyer of Dallas, Texas: 'I will give you my check for \$500 immediately.'

"George Thesmacher, Cleveland, Ohio: 'The representative of a Cleveland manufacturer is sitting by me; he agrees to take 50 books.' George further told the Chicago bunch that they may have to change their offer to \$2,000, as Cleveland stands ready for a big block.

"E. O. Hutchison, Louisville, Kentucky: 'This is the biggest proposition any association of this kind has ever undertaken; Louisville will take her share.'

"The above could have been pro-

longed considerable, but it was time to adjourn. There was great enthusiasm displayed at this meeting, and it is now necessary that every local and state association, also every individual member of the national, proceed in the same manner that was started in Dallas.

"To assure proper finances to complete the book, the committee requests that orders for one or more books be sent in immediately. Blanks for this purpose are enclosed. As members of the National Association of Sheet Metal Contractors, it is your affair that this is properly financed, and the committee therefore ventures the request that your order be accompanied with a check for one-half the amount of the purchase price. You are absolutely assured that the book will be distributed just as quickly as it can be gotten ready; the amount that you may now pay is only advancing so much to the association so that it will not be necessary to borrow money, thereby save considerable trouble for the committee and interest to the association."

# Developing Pattern Series for Marine Ventilating Work

*Public Demands Fresh Air, Which Calls for Revision of Ventilating Systems*

By O. W. KOTHE, Principal St. Louis Technical Institute

**A**MONG ocean and lake vessels there is developing a greater amount of sheet metal work than had been in use in former years. The American public today wants fresh air no matter where it is, no matter though it is in the middle of the ocean and when hemmed in by four walls it still wants fresh air brought in, and that makes work for sheet metal contractors.

Our design in this case was sent in by a student from a shipyard, and is interesting in design. This perhaps taxes the marine sheet metal worker's ability to some extent, since most of these folks are not strong on geometrical development, but do more of their work in the building up process as lifting

one piece from another.

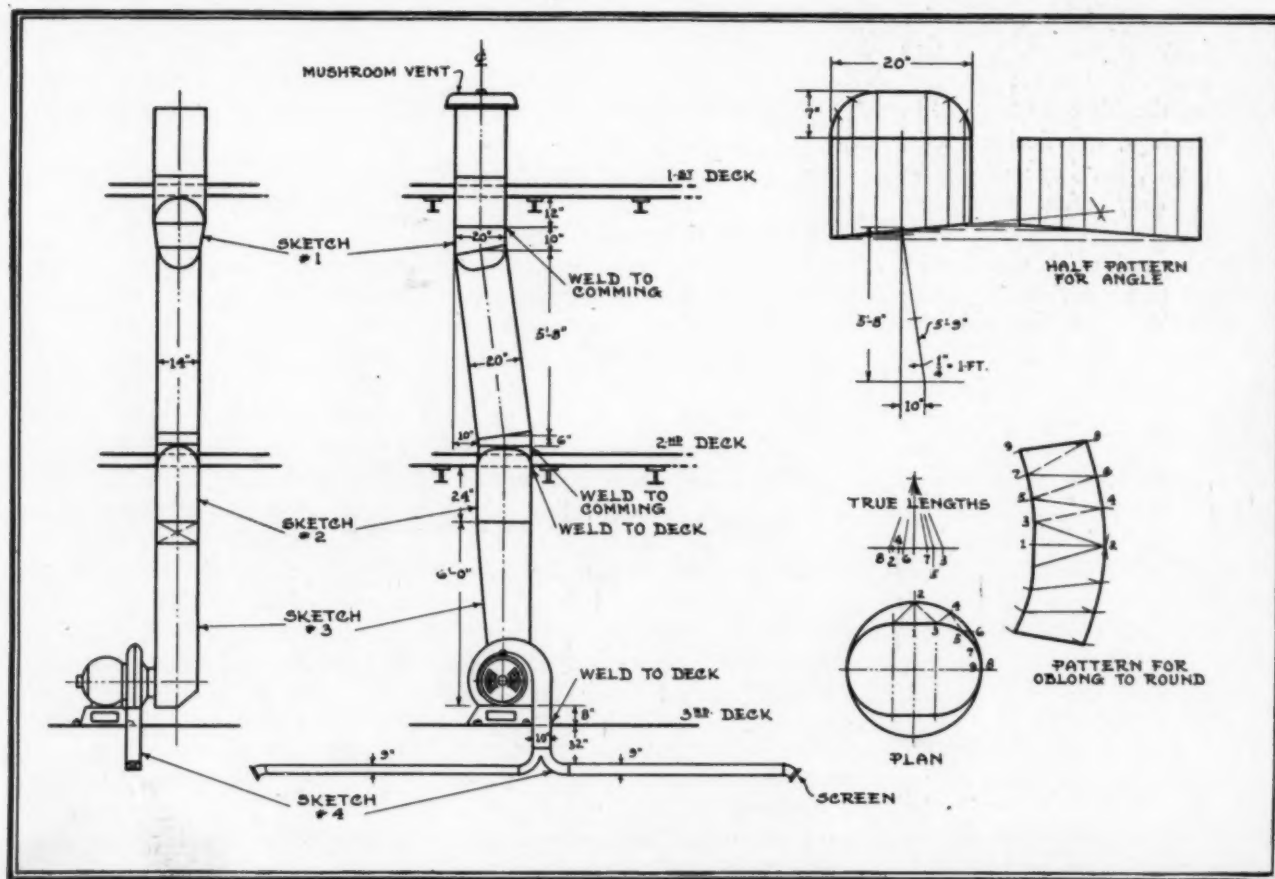
In this drawing we see a fan and electric motor attached to a pipe line that is used on a deck below for exhaust purposes. In this way aboard ship quite a number of units are installed, in order to provide proper circulation. Sometimes they have an individual system for each compartment, which, of course, makes quite a bit of work.

The riser stacks in this case are of oblong design and change in size from the fan to a longer angle, as well as transforming into a round near the top where a mushroom vent is built. So there are several patterns very necessary.

Those angles that have a straight miter can be worked out on a re-

duced scale for the angle as we show at the right. The idea is to draw a vertical line and at some convenient scale measure down the 5 feet 8 inches and then make the off-set of 10 inches, which gives the angle that can be bisected for the miter. It also allows for re-scaling the slant line in arriving at the true lengths where the axis of pipe. The pattern itself then can be developed the same as any angle for an elbow, either round or oblong.

Near the top a transition is added from oblong to round to connect with the mushroom ventilator. Observe the mushroom ventilator is 20 inches in diameter, which is considerably larger than our exhaust pipe connecting with the fan. This



Details of Ship Ventilation Work

is to reduce the air flow to within reasonable velocity as it exhausts from the ventilator. With the 9-inch pipes less draft is produced, although the velocity may still be high. On the first deck, where people are congregated, it is not desirable to have a high velocity. Therefore the plan is set out as we show and the curved lines are divided in equal parts. The diagram of true lengths is set out and the lines from plan are picked and transferred, thus giving the true lengths as shown. Observe the plan gives the base while the elevation gives the altitude, and with these we develop the pattern from the oblong to round as shown.

Other patterns can be developed for this piece of work as the bottom of the fan connection where the stack is chamfered, which can be treated much the same as a funnel or a cone since this is worked from a circle underneath. From this point the round bottom gradually grows into the oblong shown higher up.

Work of this kind is very interesting and tradesmen in a position to visit ships should examine such work as it is a part of their professions.

#### **Friedley-Voshardt Co. Finds New Use for Sheet Bronze**

The sheet metal industry has gone so far along the road of progress that it has extended its service to the golf course. The accompanying illustration shows a sheet bronze caddy boy welded made by Friedley-Voshardt Company, 733 South Halsted Street, Chicago, Illinois.

This very artistic ornament was set into the middle of the fountain erected at the Glen Oak Country Club, Glen Ellyn, Illinois. It was modelled specially for the purpose from a living model. From the bottom of the base to the top of the umbrella it is 61 inches or five feet one inch. The figure itself to the top of the cap is 46 inches high. Water is directed through the figure and up into the handle of the umbrella, thence out through the top and sprays over the umbrella.

#### **Copper & Brass Research Association Has New Special Booklet on Uses of Copper**

How Europe protects its famous landmarks against the effects of bad weather is described in a special bulletin just issued by the Copper and Brass Research Association.

The bulletin shows that for centuries European countries have honored their distinguished dead by making their last resting places secure against the ravages of time and the elements. Erasmus, the celebrated Dutch scholar and theologian of the Middle Ages, lies under a rustproof copper roof in the Swiss Cathedral of Basel. After centuries of exposure to the weather this roof still protects the Cathedral and its

unusual pattern of green and yellow gives a distinctive tone to the structure.

Since 1791 France has buried her great men in the Pantheon at Paris. In that year the structure, which had been erected as a church, was converted into a Temple of Fame to be used as a national tomb. Except for slight alterations when the scheme of architecture was changed, the copper dome of the Pantheon has remained untouched since its original construction.

Also in Paris is the stately Invalides where Napoleon Bonaparte lies under a magnificent copper-covered dome. The final interment of the banished Emperor there in 1840 was in compliance with a wish ex-



**Caddy Boy Fountain Ornament Erected in the Fountain of the Glen Oak Country Club, Glen Ellyn, Illinois. It Was Made of Sheet Bronze by the Friedley-Voshardt Co.**



pressed in his will that "my ashes may repose on the banks of the Seine, in the midst of the French people whom I loved so well."

A massive copper roof has covered the classical Church of the Madeleine for more than a century and a half. The home of the French Academy was built by Cardinal Mazarin under the reign of Louis XIV and its copper roof is still in service. A more recent building is the Paris Opera House, which dates from the Second Empire. The elaborate architecture of this structure is pleasingly set off by the green patina of its crown-like copper roof, which adds to its attractiveness.

Although few copper roofs in Germany were left undisturbed during the recent war when all available copper was needed for munitions, the Kaiser spared the red metal on the great domes of two historic Berlin churches. One of these surmounts the cathedral on the Spree known as the Dom and rises to a height of 380 feet. The other spans the 18th Century St. Hedwig's Church.

Constant exposure to rain and snow was wearing away Berlin's historic Brandenburg Gate, 133 years old, when the city recently installed copper flashings and gutters on this sandstone monument to save it from destruction.

According to the bulletin, Michelangelo's great achievement, the dome of St. Peter's in Rome, has been perpetuated by the use of sheet copper.

Overlooking the strait that separates Denmark from Sweden, the copper-roofed Castle of Kronberg still stands after 350 years at the Danish seaport of Helsingor. This city is the Elsinore of Shakespeare's Hamlet and, according to tradition, it was upon the ramparts of the Kronberg fortress that in the poet's fancy Hamlet encountered the ghost of his royal father. Kronberg has been little affected by the passage of centuries, says the bulletin, for the copper roof still protects this famous Gothic structure from the effects of salt sea air, which is itself very interesting.

### **Standard Sheet Metal Works, San Diego, Cal., Made Lindbergh Tanks**

What a time of opportunities is this for the sheet metal worker! With ever-increasing chances to develop new uses for sheet metal, he can always broaden his business into a higher type of service. At any time he may step into the spotlight of world-wide attention.

That these statements are true is shown by the recent experience of the Standard Sheet Metal Works, San Diego, California. This company built some gasoline tanks several months ago for installation on an airplane of a practically unknown flier. Little did they think that the tanks would help to set a new aviation record, or that they would go all the way to Paris, France.

Now they find that the gasoline tanks were part of the famous "we" combination—Colonel Charles A. Lindbergh and his plane, who made the first non-stop flight to Paris and won a prize of \$25,000.

Colonel Lindbergh could not have made his historic flight had he not been outfitted with the latest equipment of all kinds. His motor, compass and so on were the very best obtainable.

It was only natural, therefore, that a good sheet metal shop should be chosen to make his gasoline tanks and that, in turn, the sheet metal shop should do the very best job possible.

The Standard Sheet Metal Works made the tanks to order, using eight sheets, each 3 feet x 6 feet. The company used 24-gage alloy coated Armco ingot iron.

The Standard Sheet Metal Works is receiving the congratulations of friends for this honor, which, although entirely unanticipated, was well earned and deserved.

### **College Point, New York, Art Metal Company Moves to Larger Quarters**

The United Art Metal Company of College Point, for several years manufacturers of sheet metal products, announces an expansion of its industries in larger quarters, and the development of large shops for the

manufacture of steel building trim.

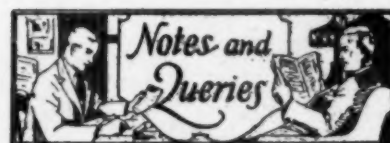
The concern, now located at 8 South 122nd (Thirteenth) street, will retain its present quarters for offices and some of the shop departments already established, but its new activities will be quartered in the recently vacated factory structure at Twenty-third (Seventh) avenue and 124th (Fifteenth) street.

While one of the less pretentious of College Point's industries, the United will increase its shop force from fifteen workers to more than fifty in the new department. This is exclusive of managerial and office forces.

As College Point is known to industrialists the world over as a rubber center it may also be known widely in this part of the country as the center of a considerable industry in the manufacture of steel building trim.

There are, exclusive of the projected departments of the United Art Metal Company, three other large concerns devoted to manufacture of these products in College Point.

Rudolph Grossfield, president, and H. Rose, secretary, of the United, have been residents of College Point for many years and before establishing a business of their own were employed in the local factories of the American Hard Rubber Company.



### **Tin Can Caps**

From L. V. Strayer, Cresco, Iowa.

Please advise me where I can buy tin can caps that do not screw on size about 1¼ inches or 1½ inches.

Ans.—Continental Can Company, 111 West Washington Street, Chicago.

### **No. 18 "Reliable" Heater**

From John Fedan and Company, Arnold, Pennsylvania.

Can you tell us who makes a No. 18 Reliable heater?

Ans.—A. J. Lindeman-Hoverson Company, Milwaukee, Wisconsin.

## Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

I had the extreme pleasure of an unexpected visit from Gus Pfeffer, proprietor of the Joseph Pfeffer Sheet Metal Works, Johnstown, Pennsylvania, and secretary of the Johnstown, Pennsylvania, Sheet Metal Contractors' Association, on Monday of this week. I am fully mindful of the honor Mr. Pfeffer paid me by making this visit and want him to know that I certainly appreciated it. Among the greatest joys I derive from my connection with the sheet metal and warm air heating industries are the personal visits I have with the contractors themselves. It was also my pleasure to visit A. Anderson, of the Anderson Furnace Company; Tom Bang, Bang Brothers; John and Frank Novak, of Novak & Company, The ExCel Sheet Metal Works, Frank Staar & Sons, all of Chicago.

\* \* \*

Gruff Father to Son: "Why don't you get out and find a job? When I was your age I was working for \$3 a week in a store, and at the end of 5 years I owned the store."

Son: "You can't do that nowadays. They have cash registers."

\* \* \*

There was once a young couple named Slightham,  
Who were afraid that disease germs would bite 'em,

They ate an apple a day  
To keep the doctor away,  
But he came and brought twins just to spite 'em.

\* \* \*

I received a postal card from my old friend, Harry Stanyer, of Dallas, Texas, one day this week. You would never guess where Harry has taken himself to. The picture on the card was that of the Hotel Plaza, Havana, Cuba, and although the card was stamped with a stamp of the Republic of Cuba, there was no post mark on it. Well, I surely

hope Harry had a good time in Cuba. He deserves it after the fine time he and the rest of the Dallas boys gave us at the national convention.

\* \* \*

My friend H. P. Sigwalt, Advertising Manager of the Milwaukee Corrugating Company, Milwaukee, Wisconsin, informs me that the friends of J. Harry Christman, Vice President and General Sales Manager of Milcor, are congratulating him on the arrival at his home of a fine 8-pound baby girl on Sunday, June 26th. I hasten to add my congratulations.

\* \* \*

I also wish to mention that in our own office congratulations were being showered upon John McElwain, Circulation Manager of AMERICAN ARTISAN, the occasion being the arrival of an 8½-pound boy on Sunday, June 26. Cigars and candy were certainly much in evidence in our office Monday morning, and the spirit of jubilation reigned supreme.

\* \* \*

### Tough on the Firing Squad

A Russian was being led off to execution by a squad of Bolshevik soldiers on a rainy morning.

"What brutes you Bolsheviks are," grumbled the doomed one, "to march me through a rain like this."

"How about us?" retorted one of the squad. "We have got to march back."

\* \* \*

While Firestone, Edison, Ford and Burroughs were touring, a light and tire on the car went bad. Mr. Ford went into a store and said to the merchant:

"What kind of lights do you have?"

"Edison," replied the merchant.

"And tires?"

"Firestone."

"You may be interested to know that Mr. Edison and Mr. Firestone are out in my car, and I am Henry Ford."

As the merchant was putting on the tire, Mr. Burroughs, who had a large crop of white whiskers, leaned out of the car; and the merchant, looking up at him with a grin, said:

"If you tell me you're Santa Claus I'll crown you with this wrench."

\* \* \*

### Collegiate English

A trip around the University of Southern California grounds brings out some expressions. Here they are with either a definition or way to be used:

May I borrow your frame for this struggle?—(Way to ask a co-ed for a dance.)

Let's have it.—(Used when ready to start anything.)

Expired over it.—(Denotes pleasure over anything.)

A nice job.—(Describes a good-looking co-ed.)

A first edition.—(More emphatic, and means the girl is perfect.)

Fourteen harps and a cannon—(To describe a poor dance orchestra.)

Sand in that remark.—(Sarcasm).  
—Los Angeles Times.

\* \* \*

Little Willie was of an inquiring turn of mind. He was always asking questions.

"Daddy," he asked one day, "is today tomorrow?"

"No, my son, of course it isn't tomorrow," was the reply.

"But you said it was," murmured Willie.

"When did I say today was tomorrow?" asked the father.

"Yesterday," answered Willie.

"Well, it was. Today was tomorrow yesterday, but today is today, just as yesterday was today yesterday, but is yesterday today and tomorrow will be today tomorrow, which makes today yesterday and tomorrow all at once. Now run along and play."—Texas Sheet Metal Bulletin.

\* \* \*

He—"Well, I have taken up golf."

She—"Do you play with 'nickers'?"

He—"I should say not—only white people."

# Correct Warm and Cold Air Duct Installation Practices Continued\*

## Showing Methods of Reducing Cold Air Drafts Across Room Floors

By JOHN S. WALKER, National Heatcraft Institute, Peoria, Ill.

**A** COLD air register placed near the bottom of an open stairway helps reduce cold draughts across the floor.

Sun rooms and other rooms with

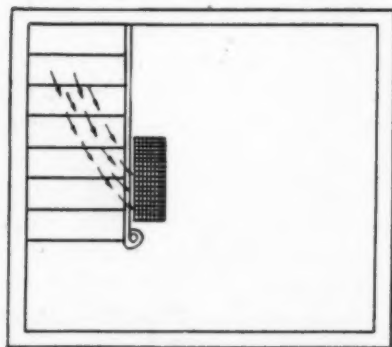


Fig. 26

large glass areas have great heat losses. A large quantity of cold air continually falls to the floor. A cold air register conveniently located will reduce draughts across the floor.

In old houses the floor level of one room is occasionally 6 inches or 8 inches lower than the rest of the house (figure 28). Unless a cold air register is placed in this room the floors will not be as warm as they should be, as the layer of cold air next to the floor cannot be drawn off.

A cold air register located in the corner, as shown in figure 29, does not give the best results. Better cir-

\*All rights reserved.

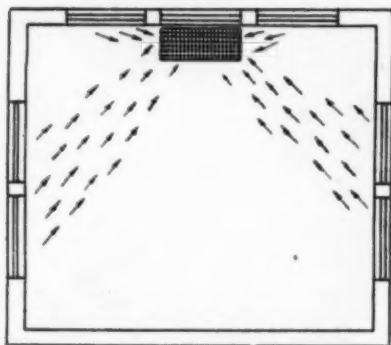


Fig. 27

ulation is permitted where the return air may enter the register from three sides as shown in figure 26.

When a second floor room "won't heat," a simple remedy can often be applied. In order to establish a circulation a vent register is cut in at the baseboard and an opening cut at the top of the studs so that there is a free circulation to the attic. As considerable air leaks from the usual attic, this air escapes and a circulation is established to the room.

The additional return air to the furnace required to make up for this loss is provided from the air that

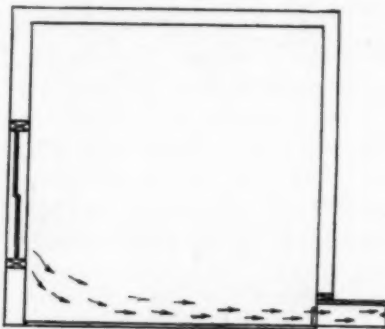


Fig. 28

leaks in around the door and windows in other rooms of the house.

### New Steamer Service Via Erie, Pa., on the C & B Line Starts July 5th

The Cleveland & Buffalo Transit Company announce a new service in addition to their special express service each night between Cleveland and Buffalo.

Beginning July 5th, their steamer, the "City of Erie," will leave Cleveland at 4:30 p. m. alternate days, stopping at Erie, Pa., at 10:30 p. m., and leaving at 12 midnight, reaching Buffalo at 6 a. m.

Returning, the steamer leaves Buffalo at 5:30 p. m., stopping at Erie at 10:30 p. m. and leaving at

12 midnight, arriving in Cleveland at 6 a. m., Eastern standard time.

For the convenience of those who

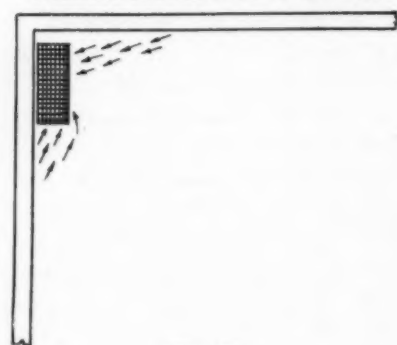


Fig. 29

travel by train, rail tickets between Cleveland and Buffalo are good on the C & B Line steamers. And as for the motorist, he can drive his car on board the steamer and arise in the morning refreshed from a night's rest, and some two hundred miles farther along on his journey than if he had stopped at a local hotel.

The C & B Line orchestra adds to the popularity of steamer "Good-time." Free dancing is a part of the daily schedule on both the daytime and evening trips of the "Good-time."

If you have any photographs of unusual sheet metal or warm air heating jobs, send them to us, together with the facts concerning them, and we will publish them in AMERICAN ARTISAN.

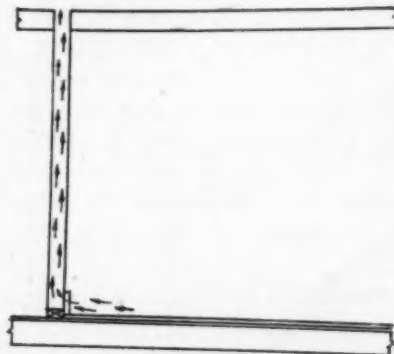


Fig. 30



# Warm Air Heating System Used to Heat the Universe\*

## *Explains Why Forced Warm Air Heating Is a Scientific Method of Heating*

By J. C. MILES

I WANT to take this opportunity to congratulate you on your program committee and your committee on the fullness and diversification of your program. It is without a doubt the best program yet.

I came here to talk forced air heating and in talking forced air heating, you will observe I am talking scientific heating, because forced air heating in so far as it pertains to warm air furnaces is scientific heating, and scientific warm air furnace heating is forced air heating. They are one and the same—identical and inseparable.

The warm air furnace research work at the University of Illinois in the last few years has placed the warm air furnace principles of heating in that select coterie of applied science and I am glad to say that we have taken a long step forward.

The research work at Champaign has shown warm air furnace heating to be scientific. Our next step, then, is to apply this science to our daily work. Those of us who do not take advantage of the information now available are remiss in our duty or our obligation to society.

This is an age of specialization; each man specializes in the thing for which he is supposed to be best fitted. Through this process Americans in all walks of life have excelled.

We are supposed to be specialists in warm air furnace heating, and the general public is depending on us to produce for them the best possible results obtainable, and if we do not do this, we are indeed remiss.

Therefore, I urge all furnace men

to strive for this scientific knowledge. I especially urge you men as furnace salesmen and supply men to familiarize yourselves with the available formulae and scientific terms that are helpful to the installer.

I maintain that the furnace man who is not familiar with the terms B.t.u., constant "K," factor 55 does not know the A, B, C of warm air furnace heating. He may be a good guesser, but he does not know; therefore, should not presume to advise.

The furnace installer of today knows that this scientific data is available and at the hazard of your displeasure I solemnly warn you that the installer is looking to you travelers for this information, and I make bold to warn those of you who are inactive or mentally lazy that there are travelers who are fulfilling their obligations by carrying this message to the trade and that it is quite obvious which traveler is impressing his personality and most firmly establishing prestige for his company.

The warm air furnace system today when properly designed, engineered and installed can be made to effect a saving of approximately 40 per cent of the fuel burned for domestic use.

If we would realize our obligation to society, we need only to observe that there are 9,000,000 warm air furnaces now in use in the U. S. and Canada, and that the average coal consumed from north to south is 10 tons per year. Just think of 36,000,000 tons of coal or its equivalent uselessly burned each year. At an average of \$10.00 per ton (that is not official, but not far off) it means \$360,000,000 last year, this year, next year and so on until we furnace men fulfill our trust.

I imagine I hear some of the skeptics who have been reading the notices of our training course in Cleveland this month muttering to themselves: "Talk about hot air cracks." I have anticipated this reaction to my amazing statement, so I suggest that they read the bulletins of the University of Illinois and the National Warm Air Heating and Ventilation Association and see for themselves in unmistakable figures the efficiency of a Standard Code job. Then visualize how much better a Standard Code job is than the average job. Then turn to the low register temperature tests and see what efficiency is obtained, not to mention the still higher efficiency derived from increased velocity, greater air volume and turnover.

I came here to talk forced air heating and I talk scientific heating. I distinguish between scientific heating and theoretical heating. Theory is the abstract—science is the concrete. Theory is problematical. To be scientific is to be positive. In theory, the thing is expected—in science the thing is done. Hence, to be scientific, it must be positive, definite and dependable. I, therefore, prove forced air heating to be nothing more or less than scientific warm air heating, because by its force it becomes positive, definite and dependable and I make bold to state without fear of contradiction that forced air heating is the one and only positive, definite and dependable principle of warm air heating.

I was convinced of this fact many years ago, but only one year ago I should have been afraid to say so. Let the skeptics who think the industry has not progressed think that over.

I should like to be allowed the time to prove by illustration the dif-

\*Address by J. C. Miles, of the Warm Air Furnace Fan Company, Cleveland, Ohio, delivered at the convention of the Western Warm Air Furnace and Supply Association held in the Pere Marquette Hotel, Peoria, Illinois, June 1 and 2, 1927.

# Correct Warm and Cold Air Duct Installation Practices Continued\*

## Showing Methods of Reducing Cold Air Drafts Across Room Floors

By JOHN S. WALKER, National Heatcraft Institute, Peoria, Ill.

**A** COLD air register placed near the bottom of an open stairway helps reduce cold draughts across the floor.

Sun rooms and other rooms with

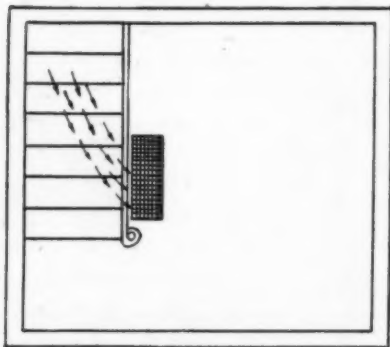


Fig. 26

large glass areas have great heat losses. A large quantity of cold air continually falls to the floor. A cold air register conveniently located will reduce draughts across the floor.

In old houses the floor level of one room is occasionally 6 inches or 8 inches lower than the rest of the house (figure 28). Unless a cold air register is placed in this room the floors will not be as warm as they should be, as the layer of cold air next to the floor cannot be drawn off.

A cold air register located in the corner, as shown in figure 29, does not give the best results. Better cir-

\*All rights reserved.

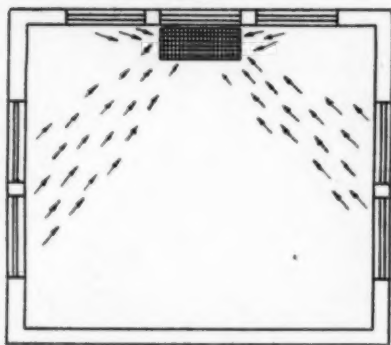


Fig. 27

ulation is permitted where the return air may enter the register from three sides as shown in figure 26.

When a second floor room "won't heat," a simple remedy can often be applied. In order to establish a circulation a vent register is cut in at the baseboard and an opening cut at the top of the studs so that there is a free circulation to the attic. As considerable air leaks from the usual attic, this air escapes and a circulation is established to the room.

The additional return air to the furnace required to make up for this loss is provided from the air that

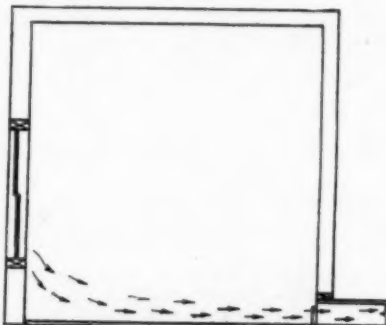


Fig. 28

leaks in around the door and windows in other rooms of the house.

### New Steamer Service Via Erie, Pa., on the C & B Line Starts July 5th

The Cleveland & Buffalo Transit Company announce a new service in addition to their special express service each night between Cleveland and Buffalo.

Beginning July 5th, their steamer, the "City of Erie," will leave Cleveland at 4:30 p. m. alternate days, stopping at Erie, Pa., at 10:30 p. m., and leaving at 12 midnight, reaching Buffalo at 6 a. m.

Returning, the steamer leaves Buffalo at 5:30 p. m., stopping at Erie at 10:30 p. m. and leaving at

12 midnight, arriving in Cleveland at 6 a. m., Eastern standard time.

For the convenience of those who

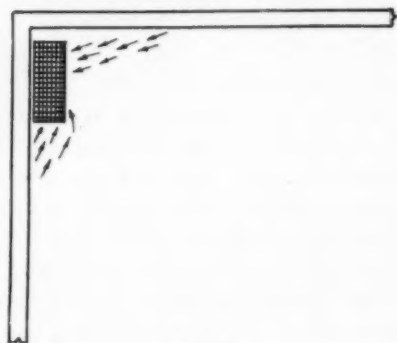


Fig. 29

travel by train, rail tickets between Cleveland and Buffalo are good on the C & B Line steamers. And as for the motorist, he can drive his car on board the steamer and arise in the morning refreshed from a night's rest, and some two hundred miles farther along on his journey than if he had stopped at a local hotel.

The C & B Line orchestra adds to the popularity of steamer "Good-time." Free dancing is a part of the daily schedule on both the daytime and evening trips of the "Good-time."

If you have any photographs of unusual sheet metal or warm air heating jobs, send them to us, together with the facts concerning them, and we will publish them in AMERICAN ARTISAN.

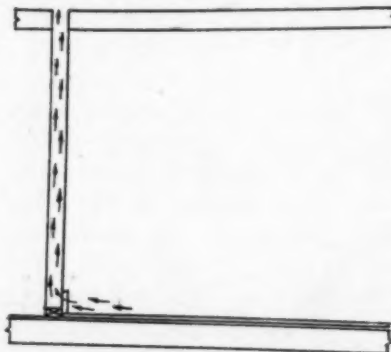


Fig. 30

# Warm Air Heating System Used to Heat the Universe\*

## *Explains Why Forced Warm Air Heating Is a Scientific Method of Heating*

By J. C. MILES

I WANT to take this opportunity to congratulate you on your program committee and your committee on the fullness and diversification of your program. It is without a doubt the best program yet.

I came here to talk forced air heating and in talking forced air heating, you will observe I am talking scientific heating, because forced air heating in so far as it pertains to warm air furnaces is scientific heating, and scientific warm air furnace heating is forced air heating. They are one and the same—identical and inseparable.

The warm air furnace research work at the University of Illinois in the last few years has placed the warm air furnace principles of heating in that select coterie of applied science and I am glad to say that we have taken a long step forward.

The research work at Champaign has shown warm air furnace heating to be scientific. Our next step, then, is to apply this science to our daily work. Those of us who do not take advantage of the information now available are remiss in our duty or our obligation to society.

This is an age of specialization; each man specializes in the thing for which he is supposed to be best fitted. Through this process Americans in all walks of life have excelled.

We are supposed to be specialists in warm air furnace heating, and the general public is depending on us to produce for them the best possible results obtainable, and if we do not do this, we are indeed remiss.

Therefore, I urge all furnace men

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I should like to be allowed the time to prove by illustration the dif-

\*Address by J. C. Miles, of the Warm Air Furnace Fan Company, Cleveland, Ohio, delivered at the convention of the Western Warm Air Furnace and Supply Association held in the Pere Marquette Hotel, Peoria, Illinois, June 1 and 2, 1927.



ference between a hot air system and a forced air system.

But first I must explain some scientific terms—all heat is measured by units just as everything else is measured. A certain liquid used to be measured in Peoria by quarts. I learned in Detroit of a new unit called a fifth—I attribute that to Scotch influence.

In the heating science, we measure heat by the British unit of heat. British thermal unit—abbreviated as B.t.u.

Exposure such as walls, windows, roof, ceiling, air leakage, etc., are figured by constants, called "K." Each substance or surface carries with it its own "K" and this constant is the loss in B.t.u. or fraction thereof per degree difference in temperature, between the cold side and the warmed side. In this way, we arrive at the total heat loss from a room. Then it becomes the heating man's job to provide the heat necessary to compensate for this loss.

Now let us assume a room to be heated—say, a large room, 1,500 cubic ft. Let us assume an air change as recommended by medical authorities—4 changes per hour:  $4 \times 1,500$  equals 6,000 cubic feet of air per hour. Suppose we heated that air 55 degrees? Then we have  $6,000 \times 55$

— equals 6,000 B.t.u. (I

55 divide by 55 because one B.t.u. will heat 55 cubic feet of air one degree). Now, let us check back by the Standard Code to see how near 6,000 B.t.u. is to the heat loss. The code allows 114 B.t.u. per inch, so to get the square inch of pipe we

6,000 divide — equals 52 square inches

114 of pipe, which would mean an 8-inch pipe, and we all know that an 8-inch pipe would not heat a room 12 feet 6 inches by 13 feet 4 inches by 9 feet.

What shall we do to get more heat? The answer is to increase the temperature. So we will increase the register temperature from 120° F. to 175° F, which is the register

temperature adopted by the code committee. Then we have a register temperature of 175 — 65 (which is the floor temperature) equals 110° F. to be absorbed by the exposure. Then with four changes, we have:

$6,000 \times 110$   
4  $\times$  1,500 equals — equals 55  
1,200  
equals — equals 104 square  
114

inches, and I hear several of you saying a 12-inch pipe, which is about the right size pipe for a room of this size. This is scientific, definite, positive and dependable as far as it goes. But we all know that there are hundreds of rooms this size with 12-inch pipes and that do not heat, and the explanation is that the indefinite thing is the air volume. If the pipe is long or crooked we only get three changes instead of four, then we have  $3 \times$

$4,500 \times 110$   
1,500 equals — equals 55

9,000 B.t.u. and only 75 per cent of the required heat.

Then, again, the pipe may be both long and crooked or a windward side and we only get two changes. Then with two changes we get  $2 \times$

$3,000 \times 110$   
1,500 equals — equals 55

6,000 B.t.u. and only half the heat required. Excluding, however, that generated by the owner when we go to collect for the job.

Now, I don't say this room can't be heated with this volume of air, because it can, but let's see how: We need 12,000 B.t.u. We have 3,000 cubic feet of air. If we heat 3,000 cubic feet of air to 55° F. above the room temperature, we have 3,000 B.t.u., which is  $\frac{1}{4}$  of 12,000; so something will have to be multiplied by four. The air volume is fixed, so we multiply the temperature, then we have:  $55 \times 4$  equals 220° F. Add to this the floor temperature and we have: 65° plus 220° equals 285° F. at the register.

I think you will find in one or more of the bulletins that the effi-

ciency at 135° F. is 60 per cent and at 185° is 45 per cent. Then, I ask you, what is the efficiency at 285° F.?

And how far off was I with the amazing statement regarding the possibility of saving for our nation enough money to build a dyke along the Mississippi from St. Louis to New Orleans in ten years or enough roads and schools to astound the world.

I don't want to appear as a Babbitt addressing the roaring Lions Club, but I am profoundly impressed with the gravity of this situation and in a humble way want to do something about it if I can.

I have no hesitancy in saying the warm air furnace system can be made the very best possible heating system for any service, because I can prove it.

The Supreme Engineer designed a warm air (convection) heating system for the earth. The sun shines on the earth and heats it by radiant heat. Then the wind blows and rubs the air over the earth and convects the heat and we have warm air.

This is proven by the fact that at the north pole where the sun strikes at an angle, the air is frigid, whereas at the equator, where the sun strikes the earth at a direct ray, it is very hot all the year, or on the mountain top 3,000 feet up they are capped with snow and down in the valley in the strata of convected heat, the orange blossoms abound, and it is 90° F. in the shade. So we can carry the torch high—heads erect, shoulders thrown back and a firm step, for we are sustained by the Supreme Authority.

The earth's original heating system, designed by the Supreme Engineer, is a warm air system.

### Retail Hardware Doings

#### Iowa

Wm. Nones bought the Shreves Hardware store at Brighton.

#### Minnesota

August Miettunen sold the Eveleth Hardware Company to Jacob Korpi. Nelson and Horak Hardware of Marshall have sold out to the Larsen Hardware Company.

# Fitting the Fan to the Furnace Is in Line With Present Day Practice\*

## Heating of Future to Be Connected With More Positive Circulation

By R. W. MENK

**F**IRST of all we want to make ourselves plain as to where we stand on warm air heating by saying that the results that can be obtained from a good gravity system, installed in accordance with the standard code, is superior in every way to any other mode of heating, barring none.

Next, warm air heating is gaining in such rapid favor that it is almost impossible to go to an extreme in making preparations for the future. On every side we have the visible signs of the lightning speed of changing times. It seems such a short time when I was first advocating the necessity for some device that would assure positive warm air circulation, but here today is one of the visible signs of its growing interest. Your presence here is an immeasurable expression of the gaining interest in making the warm air system the best that knowledge, research and genius can devise.

Next, we want to emphasize that all householders favor clean, reliable, convenient, quick, automatic controllable heat. All builders of homes are eager for some system of heating that will assure these results.

Certainly we must get away from the idea that we can continue in the future exactly as we have in the past. If we propose to accept our opportunities it will be necessary for us all to expand our operations.

The trend for automatic heating is gaining in favor at a tremendous stride. Oil and gas are being recognized as the fuels of the future, and

here again warm air will dominate, because of its ability to furnish those atmospheric conditions that health specialists already have recognized as the foundation for the health of humanity.

Here is what an editorial writer in one of the recent gas journals has to say: "Heating in the future will be coupled with better and more positive atmospheric conditions. Our homes and working places will be under perfect control, and all the air we breathe therein will be conditioned as to have proper humidity content. This last development means a great deal more to the gas industry than most of us suppose. If we are to condition indoor air in the cold months, it is probable that this new practice will force the adoption of warm air heating in place of present systems using steam, hot water, etc."

That's some compliment for warm air, gentlemen: its influence will be more than noticeable when such men as he come out so boldly in favor of a particular kind of system.

I am sure that these statements will awaken all of you to a far greater realization of where warm air will be placed as the dominating heating system of the future.

I could not help expressing these matters before entering upon the features of my subject, "Fitting the Fan to the Furnace." It had been my intention to cover the majority of these features in this paper, but being pressed for time, I will only outline them, and spend the balance of the time allotted to me for an explanation of our analysis of what "Fitting the Fan to the Furnace" means.

### The Need for the Fan

1. There is an increasing demand, fostered by educational advertising, for warm air systems in

the larger, finer homes, churches, schools, etc.

2. The effectiveness of a gravity warm air installation is limited.

3. There are thousands of warm air installations that are not functioning that can be made to do so.

### Advantages to the Public

1. Provides finest heating system that can be had at any price.

2. Installation cost comparatively low.

3. Operates at a minimum of expense.

4. Improved atmospheric conditions in homes, churches, schools, etc.

5. Positive circulation.

6. Heat in every nook and corner.

7. Longer life for heating unit.

8. Less effort to operate heating plant.

9. Fuel economy.

10. Benefits of warm air available to those who have been forced to depend on other systems.

### Advantages to the Salesman

1. Applies to any make or type of furnace.

2. Provides something actually needed.

3. Can establish prestige by making installations function.

4. Assures absolute satisfaction for every customer.

5. Can obtain better prices for the dealer with booster system.

6. Reduces sales resistance.

7. Greater potential sales and profits assured.

8. Increases field in which he can operate successfully.

### Advantages to the Manufacturer

1. Increases production.

2. Lower costs.

3. Can better satisfy buying public.

4. Makes every job function.

5. Does away with service work.

\*Address of R. W. Menk, heating systems division of Robinson Furnace Co., on "Fitting the Furnace to the Fan," delivered before the delegates to the convention of the Western Warm Air Furnace and Supply Association in the Pere Marquette Hotel, Peoria, Illinois, June 1 and 2, 1927.

6. Eliminates burning out of the heater.

7. Adds prestige and good will.

There are three phases of fan furnace heating with which the average furnace man has to come, namely, gravity, blast, with recirculation and ventilation, and the unit heater such as is used in shops, factories, etc.

What fits the needs in one instance cannot, to our minds, satisfactorily work to advantage in the others. Consequently, we advocate that the problems are widely separated and have tried to work them out in the simplest possible manner in order to permit the furnace man quickly to determine the right unit for a particular job.

It is true also that these three phases of fan heating are somewhat closely tied together, for back of it all are the natural laws which must be considered when the problems arise. While these laws are perhaps easily definable, there are conditions that come up that often startle us. I have tried to define them, but have come to no better conclusion than to say that air is tricky. It does some fool stunts that are sometimes unaccountable. These conditions are, of course, experienced with gravity as well as with fan systems.

First of all, we are interested in what the fan can do for the warm air furnace, and how it fits in with potential sales possibilities. Second, I would ask you to think back over your past experiences and visualize the many jobs, both large and small, that have been lost because warm air heating was in disfavor, or because of a lack of knowledge or fear of poor results on the larger, finer jobs. In some instances it was due to the owner failing to appreciate what a warm air furnace could do.

Perhaps his prejudice was caused by a former experience or those of friends or relatives. No matter what the reason, the prejudice was there. Again, the fault may have been with the architect or contractor. Regardless of conditions or reasons, however, back of all of them was the warm air industry, the

manufacturer, the dealer, and the salesman. Our experience, our ability and our enthusiasm has been limited and consequently this business was lost to radiator heating. It's different now. The Standard Code, as a yardstick, has built up our confidence. I am here today to add in every way that I can to that confidence and to help increase the possibilities for sales, for everyone interested in the furnace industry and in warm air heating.

It is not possible with the brief period allotted to me to cover a university course in fan furnace heating, and, in fact, so far as I know, there is no such course available at this time, but there is much for all of us to learn. In past years there have been spasmodic periods when interest was shown in fan furnace heating, but there has never been a time when a greater realization of the merits of the furnace fan has existed than is true today. This interest naturally has been propagated through many sources and channels, but to my mind I repeat there has never been such a realization of the merits of warm air heating as at this time, and what the future will bring will depend entirely on the industry and its ability to visualize what lies beyond the horizon.

As stated in the beginning, there are three phases of fan furnace heating. First of all let us go over the fan blast and unit heater situation, for I assume your greater interest lies in the application of fans to gravity installations and shall leave that phase to the last.

The fan blast system is typical of those used in the larger schools, theaters, churches, etc., and with which I assume you are all more or less familiar. Suffice to say that this class of work is highly technical and should never be undertaken by the average furnace man without the guidance and advice of those who have, through actual experience, qualified themselves to guide and advise. This type of heating is very rapidly gaining favor and is certainly worthy of consideration as a potential field for all of us. It is

usually installed through a system of ducts connected directly to the air chamber of the furnace housing, or through a trunk line system made in round or rectangular form, and is designed to supply ventilation as well as heat. In some instances air washers and ozone machines have been supplied and it is a fact that some of the largest theaters in the country are heated and ventilated with a system of this kind.

It would require entirely too much time to go into details on this subject, but the principal feature so far as the fan and the furnace are concerned is that the air passages around and beside the furnace are considerably smaller than those featuring the ordinary portable furnace, because the velocities are usually so much higher and the temperatures so much lower, because of the resistance through the plant, and because of the larger volume of air required for ventilation. Next: the fan with such a system must be operated continuously in order to procure the required results. Such systems are usually equipped with blower type fans. For the time being, this analysis will suffice regarding fan blast systems, but I hope to have more to say concerning them later on.

The unit heater type of equipment is the kind that is ordinarily used in heating factories or buildings where large open spaces must be warmed. It is typical of the ordinary room heater except that a fan is attached. Such systems usually consist of a furnace with a casing and bonnet.

The bonnets used are of a variety of styles built to cope with the individual installation. These systems are sometimes equipped with ducts such as are used with blast systems, and where this is done a certain resistance is built up that makes the use of the blower type of fan advisable. If the air is simply discharged into the space to be heated, through an individual outlet or series of outlets, the propeller type of fan can safely be used. Where quiet operation is essential, the use of the blower fan is also advised. Unit



heater installations are usually very simple and most manufacturers furnish data that makes it easy to determine the proper size to use.

Next we come to the all-important subject, the application of fans to gravity installations. Their installation in this kind of a system is more common than the blast or unit heater type of installation and the field for the average furnace man is much larger, potential individual sales are much greater and their importance to everyone, from the manufacturer to the installer, is so pronounced as to make a careful study of the subject advisable. I will enumerate some of the especial features before calling your attention to some hastily prepared outlines. In order to appreciate how extensive this subject is and how far-reaching in its results, consider if you will these subjects:

What makes the furnace buck (foul balls)—low combination rate—high efficiency—underground cold air system.

Resistance through the plant—weight of air—volume—load.

Resistance at the registers.

Forced air system—temperature—booster system—positive circulation—propeller fans—blowers—operation cost—noise motors—(waste packed) furnace baffles—gravity blast.

Turbulence—tricky air—air stratifications—stoking red hot furnaces.

When the little thermostat on the wall clicks in the future because the space demands more heat, there will be an instantaneous response to its demands. The air will be of just the right velocity, temperature, and humidity. The air will be clean and free from bacteria, and such ingredients as may be injurious to the health of the occupant.

Now, gentlemen, I hope what I have said will serve as a guide for your future success in the furnace business. I cannot too strongly emphasize the need for your beginning to promote furnace fan heating, but especially urge you to negotiate with people who are promoting the sale of such devices. It costs money to experiment. It takes

your time that could be more profitably used in the sale of fans and furnaces. It puts the question of failure or success up to those who supply the equipment in a larger measure.

Let us not run so wild that there will be more failures than successes. With the Standard Code as the yardstick, with your furnaces and installations up to standard, with other modes of heating on the run, with the growing consumer demand for the best heating system, with a more dignified attitude toward what we have to offer, let us all go home with our heads up and say we are prepared to furnish the finest and best improved heating system that the world has ever known.

#### **Should Plan Greater Conservation of Time at Conventions**

R. B. Strong, vice president of the Homer Furnace Company, Coldwater, Michigan, is the author of this statement relative to the fan argument which took place at the Peoria convention last week:

"Relative to the fan 'argument' at the Western Warm Air Furnace and Supply Association at Peoria last week wherein a controversy or mock trial was carried on for the purpose of establishing the practicability of a furnace fan on a warm air heating job.

"It will be recalled that some 200 manufacturers and representatives were in attendance. This body of men come under the practical type and are depending more or less on their own good common sense in heating, together with the help of the Standard Code.

"The argument in question was carried on by technical men using technical terms and technical figures to the extent that it was brought out that some 9 per cent fuel loss passed through the chimney while the balance of the fuel is utilized in the heating plant, if properly installed according to the National Code. Some of the participants argued that a fan did not increase the efficiency of a furnace, while, of course, the fan manufacturers claim different.

"Taking everything into consideration I consider the so-called discussion a waste of time from a common-sense standpoint. Common sense is what the majority of we manufacturers must rely upon. As a manufacturer of warm air furnaces, I must frankly state that the furnace fan is a life-saver to the furnace industry. In spite of the Standard Code of Heating, we will find the extremely long run which invariably causes trouble, but it can be immediately remedied through the use of a fan. Heretofore when the architect presented plans for a building having a basement in one corner only, it has been impossible for the furnace man to bid, but the fan has opened up this new avenue of business for him whereby he may install a fine warm air heating job, giving better satisfaction than steam or hot water, at a saving of from 30 to 50 per cent over the steam or hot water.

"I have personally seen ill-working furnace installations immediately remedied to the satisfaction of all concerned through the simple installation of a fan.

"I believe any common-sense thinker will agree with me that the furnace fan is here to stay and that the industry should prepare themselves to learn how to take care of this line of work as I find that proper fan furnace installation is absolutely necessary if satisfaction is to be the result."

#### **What Method Is Used for Expansion and Contraction Allowance?**

TO AMERICAN ARTISAN:

In using tin for gutter tin the 28-inch or the 20-inch way, the joints, after being well soldered, burst in a few years. We say this bursting is caused by expansion and contraction. What method is now used to allow for expansion and contraction? Twenty years ago we soldered some of our gutters on both sides and the results have proved to be good, but they could be better.

T. E. REDMAN.

Groveport, Ohio.

## "What Will Forced Air Job Do That Standard Code Job Won't?"

*Information Now Available  
Too General in Nature*

By LES. R. TAYLOR

FROM Sidney Arnold's reaction to the Western Warm Air Furnace & Supply Association meeting, I gathered the impression that Buck Taylor, Jack Stowell and myself were obstructionists, and that our questions were somewhat similar to those of a Democrat "ragger" at a Republican meeting.

True enough these impressions were written in a humorous vein, but humor is so close to sarcasm, that sometimes it is hard to distinguish, and I hope that the big majority of your readers have a generous sense of humor.

In the first place, I understood that meeting to be primarily an education one and on the program were two furnace fan representatives.

By accepting the invitations those two placed themselves literally in a teacher's position and they can not construe any question asked in any other manner than from an information standpoint.

Frankly, I know very little about fans—and had hoped to get some definite information at Peoria.

However, one man talked in a most general manner about warm air heating and stated that the only perfect job was a forced air job, while the other man was somewhat more specific in that he stated that one certain type fan was no good, and yet neither of these men gave any information regarding fans or forced air heating.

Should we who are trying to keep abreast of the times have simply kept still and not asked questions? Would we have been fair to ourselves or the companies we represent had we done so?

A great deal of space has been given to forced air heating in the trade papers and many statements made that cannot be proven from an engineering standpoint.

Thousands of dollars have been

spent at Urbana to get certain definite formulae and to educate all of us to the use of it. Before such research work took place even the furnace manufacturers had to estimate the capacities of their heaters.

The research information is available to everyone and in all the tests the engineering data was shown and as B. L. T. used to say, they let "The quips fall where they may."

We know from laboratory tests what the Standard Code means and we have had it proven during severe winter weather. We are all trying to install by the Code and some manufacturers will even guarantee the proper heating of a Code heated house even though they have never seen the house plan.

Hence our question "What will a forced air job do that a Standard Code job won't, or in what way will a fan added to a Standard Code job help the operation of that job?"

We have no axe to grind on the fan question; we sell them and through them help earn our living, but we want information to help us sell them and to know what they will do in a specific sense not in generalities.

The intelligent use of fans will, without doubt, be an aid to the warm air furnace industry, but the unintelligent use will most certainly be highly detrimental to all concerned.

We have seen fan jobs where the fan frame only had 75 per cent of the boot opening so that when the fan was not in operation the return air was of necessity 25 per cent short. Is this good heating practice?

There are jobs where evidently no attempt was made to calculate the resistance—where the full delivery of the fan was taken and not only was it impossible for the job to

operate on gravity but it was not over 50 per cent effective with the fans used and yet the plan bore a fan manufacturer's O. K. Is this for the good of the heating industry?

These are merely quoted to show that there is a need for information since one is a fundamental defect in the design and the other a bad example of improper application.

Buck, Jack and myself are interested in knowing the "why and how" so we in turn may use it in our own business and we think the fan manufacturer should be in a position to give us the information asked for if it is available and not treat our request as an attack in general against the use of a fan or forced air heating.

### **Unknown Quantity to Many Business Men Overhead Still an**

Overhead, which with labor and materials constitutes the trilogy that determines the success or failure of an industry, still remains an unknown quantity in many lines of American business. This is the conclusion of the Department of Manufacture of the Chamber of Commerce of the United States which has completed a study of *The Evolution of Overhead Accounting*. In handling the overhead, it has found, many otherwise progressive plants are still very much in the dark.

In the old days the difference between income and outgo which could not be accounted for by costs of labor and materials was known as overhead. Later, with the introduction of cost accounting, the character of overhead was more definitely determined. Some manufacturers found that they were making things at a loss, instead of a profit when the overhead was included in the production costs of specified articles.

The Department of Manufacture will attempt to determine what is fundamental in overhead accounting in order that the small manufacturer as well as the large may know how to proceed in laying this ghost.



*The Steamer Malolo—  
pride of American Ship-  
building ingenuity and a  
triumph in architecture  
of the High Seas.*

## Permitting No Compromise with Permanence

**F**OR this largest of American-built passenger Vessels, thousands of feet of Wheeling Hand-Dipped Conductor Pipe were used in constructing the ventilating system.

With Wheeling Hand-Dipped Conductor Pipe, permanence is obtained both in the Copper-Alloy base and in the heavy coating of pure zinc which thoroughly covers and protects surfaces, edges and seams. Permanence of installation is assured.



*To endure salt air conditions, no indifferent, unprotected metal could possibly meet the requirements. Wheeling Hand-Dipped Conductor Pipe resists wear and weather as none other with the same strength.*

On land or sea—for draining water from the roof of the smallest dwelling or for carrying fresh salt air to every compartment of an ocean going vessel—Wheeling

Hand-Dipped Conductor Pipe proves most economical because it permits no compromise with permanence. Specify it for your own and your customer's protection.

Wheeling Corrugating Co.  
Wheeling, W. Va.

New York      Philadelphia      Chicago  
Kansas City      St. Louis      Richmond  
Chattanooga      Minneapolis

# Wheeling

## HAND-DIPPED CONDUCTOR PIPE

*When writing mention AMERICAN ARTISAN—Thank you!*



**Chicago Retail Hardware  
Outing to Be Held  
July 13 at River Grove**

The annual outing of the Chicago Retail Hardware Association will take place Wednesday, July 13th, 1927, at River Grove, Willow Springs, Illinois.

The manufacturers and jobbers have been very liberal with their donations and we believe the prize list will be larger than ever.

The last Hardware Outing was the biggest success of any held by the Association, especially the large representation of dealers, jobbers and manufacturers and we hope this one will be greater, for the committee will do all in its power in its efforts to please all who attend.

Please mail checks to me for tickets, as we can keep a better record, and you have a receipt in case of error to credit you correctly.

Hoping to meet you personally at the Outing, we remain,

Very truly yours,  
Entertainment Committee  
WM. TRIESSELMANN, Secy.

P. S.—Please make checks payable to Wm. Triesselmann, 3003 Belmont Avenue.

**XXth Century Heating &  
Ventilating Company Ends Suit  
with Pease Hardware Co.**

The case of the XXth Century Heating & Ventilating Company vs. Pease Hardware Company of Redwood, Minnesota, and Wm. Hinkle has just been settled in the United States District Court at Minneapolis, according to D. E. Brown, Brown Advertising Agency.

The suit was brought by the XXth Century Company against the defendants to test the legality of the patent held by the XXth Century Company on the Overhead System of Heating.

The final decree, written by Judge B. Sanborn, United States District Judge for the Minnesota district, states that the Pease Hardware Company infringed upon the patent of the XXth Century Heating & Ventilating Company and that the Pease Hardware Company is enjoined from directly or indirectly

using or selling any hot air heating system embodying the invention of this patent covering the Overhead System.

In the XXth Century Overhead System heat rises directly from the furnace through a large upright heat pipe to a main artery in the attic from where the heat is carried down to the rooms below through lateral pipes with registers in or near the ceiling. By this method, heat, traveling straight up this upright pipe, gains a greater velocity which sends it farther from the furnace than is the case where ordinary lateral pipes are used. Due to this greater heat velocity rooms farther away from the furnace can be as easily heated as rooms close to. Particularly, long narrow bungalows like the one illustrated here, and also homes where the cellars are only under one section of them, the XXth Century Overhead System of Heating has been found to be most practical.

The XXth Century Company gives license to its dealers to install furnaces by this method for a royalty charge in each installation.

**Here Are Ten  
Commandments for  
Retailers' Use**

E. A. Lettingill of the advertising staff of *The Milwaukee Journal*, who has had more than 30 years' experience with large department stores throughout the country, has written a set of commandments for retailers which has more merit than most decalogues, for it contains a sound philosophy of retailing:

**The Ten Commandments for  
Retailers!**

- I. Thou shalt love thy business and it only shalt thou serve; for thy business is a jealous business visiting the iniquity of the management on all connected with it, but bestowing favors to the third and fourth generation on those that love it and keep its commandments.
- II. Thou shalt display thy merchandise with loving care and thou shalt not permit thy window displays nor thy interior decorations to wax old, tarnished or dulled in attractiveness.
- III. Thou shalt know thy business and all its wares; nor shalt thou fail to impart thy knowledge to all thy salespeople to the end that they,

too, may be familiar with their merits.

- IV. Thou shalt honor thy customer and him only shalt thou serve; that thy profit may be great and that thy days in business may be long in the field thou hast chosen.
- V. Thou shalt diligently impart to all thy customers the real merits of thy goods that thy patrons may select therefrom, according to their needs, with intelligence and satisfaction.
- VI. Thou shalt not lie; neither about thy sales, nor thy service, nor thy merchandise; nor shalt thou bear false witness concerning their values nor their former prices; that all thy sales be honest sales; so shalt thou have pleased customers and honor and profit therewith all the days of all thy years.
- VII. Thou shalt not covet thy neighbor's business, nor his salesmen, nor any of his servants; thou shalt not belittle his merchandise nor his service, but thou shalt strive to excel him in his every endeavor and make thine own business superior to his.
- VIII. Thou shalt not cheat thy customer, neither in quantity, nor in quality, nor in price; nor shalt thou render to even the least of these, thy customers, less of value or of service or of courtesy than thou dost extend to the favored, for the least of these may become the greatest.
- IX. Thou shalt keep thyself, thy reputation, thy store and all thy wares clean and above reproach; nor shalt thou permit thy salesmen nor any of thy servants to be unclean nor their goods ill-kept.
- X. Thou shalt diligently advertise thy business, thy wares and thy service that all men may learn that their interests are safe in thy hands and that thou dost give the fullest measure of value; for knowest thou not that if thou blowest not thine own horn, then verily thy horn shall not be blown.

**J. Albert Murphy  
Finds Artisan  
Want Ad Columns Useful**

TO AMERICAN ARTISAN:

Kindly discontinue my advertisement for a tinner wanted, as I have secured a man through the valuable aid of your paper.

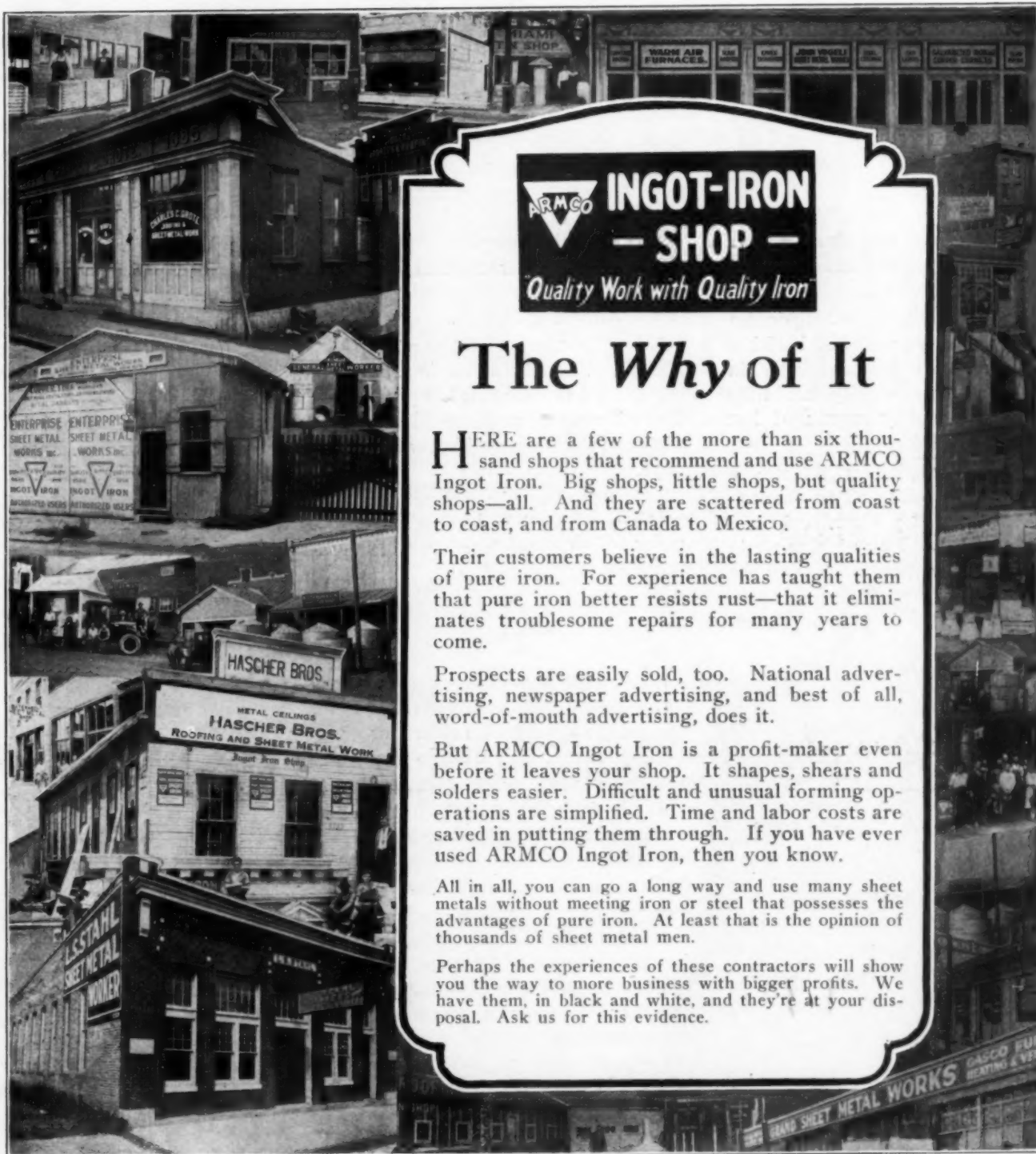
Yours very truly,  
MURPHY PLUMBING & TIN SHOP  
Flat River, Missouri.

**Vick & Schultz Get  
Results from Advertising in Artisan**

TO AMERICAN ARTISAN:

You may discontinue our advertisement, No. B-38. We certainly have received great results from this advertisement.

Yours very truly,  
VICK & SCHULTZ.  
Delavan, Wisconsin.



**ARMCO** **INGOT-IRON**  
— SHOP —  
*Quality Work with Quality Iron*

## The Why of It

**H**ERE are a few of the more than six thousand shops that recommend and use ARMCO Ingot Iron. Big shops, little shops, but quality shops—all. And they are scattered from coast to coast, and from Canada to Mexico.

Their customers believe in the lasting qualities of pure iron. For experience has taught them that pure iron better resists rust—that it eliminates troublesome repairs for many years to come.

Prospects are easily sold, too. National advertising, newspaper advertising, and best of all, word-of-mouth advertising, does it.

But ARMCO Ingot Iron is a profit-maker even before it leaves your shop. It shapes, shears and solders easier. Difficult and unusual forming operations are simplified. Time and labor costs are saved in putting them through. If you have ever used ARMCO Ingot Iron, then you know.

All in all, you can go a long way and use many sheet metals without meeting iron or steel that possesses the advantages of pure iron. At least that is the opinion of thousands of sheet metal men.

Perhaps the experiences of these contractors will show you the way to more business with bigger profits. We have them, in black and white, and they're at your disposal. Ask us for this evidence.

No matter where you are located there is a distributor of ARMCO Ingot Iron near. If you are in doubt, though, wire or write the:



**ARMCO Distributors'**  
**Association of America**  
Executive Offices: Middletown, Ohio

**ARMCO** **INGOT IRON**  
The Purest Iron Made

When writing mention AMERICAN ARTISAN—Thank you!



# Production of Iron and Steel Still Downward—Outlook, However, Is Brighter

## Pig Iron Is Slightly More Active—Nonferrous Prices Uncertain

**B**USINESS operations, both commercial and financial, have continued to record totals quite close to last year's volume.

The generally expected decline from the early months of 1926 has not yet been exceeded and, in numerous lines, activity has fully equaled the early months of last year.

Factory employment, where a considerable falling-off was expected, made a May record only two per cent below May of last year in number of workers employed while payrolls held even, indicating a gain of two per cent in per capita earnings.

Production of iron and steel still tends downward as the third quarter opens but the prospect before the industry has brightened measurably.

Operations will be suspended over the July 4 holiday and a few producers may be down the entire week. Some consumers, planning to close next week for vacations and inventory-taking, have held up shipments until the week of July 11.

Steelmaking operations for the country have receded from 74 to 70 per cent.

### Pig Iron

At Pittsburgh the pig iron market is slightly more active. Steelmaking grades are lower by 50 cents.

A report of a sale of a round tonnage of basic iron in northern Ohio at \$17, furnace, is unconfirmed here.

A Pennsylvania steelworks interest closed at \$17.50, valley, against a recent price of \$18.

One valley merchant furnace has adopted the same figure and another is ready to do so. Bessemer iron also is down 50 cents.

One builder of rolling mill machinery bought 2,000 tons of bessemer at \$18.50, Pennsylvania fur-

nace, having the same freight rate here as from the valley.

Several orders for charcoal iron have been placed in this district at \$27.04, delivered, Chicago.

A few 500-ton lots of low phosphorus iron have been closed. The market for 1 to 2 per cent low phosphorus is reported at \$31 to \$31.25, with some offers reported below this range.

Estimates place the amount of third quarter pig iron tonnage sold thus far at Chicago at not over 25,000 to 30,000 tons.

Several large buyers are inquiring and some additional tonnage has been placed.

About 3,000 tons of No. 2 foundry, malleable and specialty iron has been sold to a Milwaukee melter for third quarter at \$20, Chicago furnace.

At Birmingham though the future is uncertain for blast furnace interests there is no reason for any immediate readjustment as to foundry iron.

Blowing out of furnaces is looked for, but so far no addition has been made to the surplus stock on furnace yards, and tonnages on consumers' yards are small.

Deliveries are active. Quotations still are at \$18, base, Birmingham.

### Copper

Late last week it appeared as though a recovery was beginning in the copper market.

However, the upturn was but momentary and prices again have turned downward.

Most producers are asking 12.62½ cents delivered Connecticut, but others would accept bids under this level and with a market test lacking it is difficult to determine the bottom of the market.

### Zinc

The statistical position of the zinc

market favors the buying side, but despite this fact prices have held fairly firm during the past week.

Demand is extremely dull but the stronger zinc ore market tends to hold the prime western metal price up.

### Lead

Little change has developed in lead during the past few days. Prices are practically unchanged from a week ago at 6.15 cents, East St. Louis, and 6.40 cents New York.

The American Smelting & Refining Company continues to quote 6.40 cents, New York.

The market has been moderately active although the fluctuations in London have exerted considerable influence here during the past few days.

### Tin

Prices have tended downward as the tightness in some positions eased off.

Premiums on nearby metal have been cut.

At the moment not much tin business is expected to be placed in any position until after the July 4 holiday.

### Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$40.50; commercial 45-55, \$37.50; plumbers', \$34.50; all per 100 pounds.

### Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.50 to \$17.00; old iron axles, \$20.00 to \$20.50; steel springs, \$14.25 to \$14.75; No. 1 wrought iron, \$11.00 to \$11.50; No. 1 cast, \$14.00 to \$14.50, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc 3½ cents; cast aluminum, 13¾ cents.



# Oxweld it!

It wasn't so very long ago that a broken casting frequently meant sizable financial loss: idle machines; expensive new parts; delay until they could be received and installed.

Nowadays the repair of castings is quickly accomplished with oxy-acetylene welding, often without dismantling the machine. Most master mechanics are thoroughly familiar with the process and know that the technique has been perfected. The simplicity of repairing a machine on the spot without any delay has saved many companies thousands of dollars.

Most of these repairs are made with Prest-O-Lite dissolved acetylene—the standard welding gas for 22 years. Because of Prest-O-Lite, welding progress has been possible.

## *Prest-O-Lite* DISSOLVED ACETYLENE

22 years old and still growing



**THE PREST-O-LITE COMPANY, INC.**

Unit of Union Carbide and Carbon Corporation

General Offices: Carbide and Carbon Bldg., 30 East 42d St., New York

31 Plants — 101 Warehouses

Say you saw it in *AMERICAN ARTISAN*—Thank you!

# Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

## METALS

### PIG IRON

Chicago Fdy., No. 2.....	\$20 00
Southern Fdy., No. 2.....	24 01
Lake Superior Charcoal.....	27 04
Malleable .....	20 00

### FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets.....	\$25 10
IX 20x28.....	29 60
IXX 20x28 56 sheets.....	16 20
IXXX 20x28.....	17 55
IXXXX 20x28.....	18 95

### TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	\$26 00
IX 20x28, 40-lb. 112 sheets	28 50
IC 20x28, 25-lb. 112 sheets	31 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IX 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

### "ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including	
1/2 in.—100 lbs.....	\$4 55

### COKE PLATES

Cokes, 80 lbs., base, 20x28.....	\$13 60
Cokes, 90 lbs., base, 20x28.....	13 80
Cokes, 100 lbs., base, 20x28.....	14 00
Cokes, 107 lbs., base, IC 20x28.....	14 30
Cokes, 135 lbs., base IX 20x28.....	16 40
Cokes, 165 lbs., base, 56 sheets.....	9 20
Cokes 175 lbs., base, 56 sheets.....	10 05
Cokes, 195 lbs., base, 56 sheets.....	10 90

### BLUE ANNEALED SHEETS

Base 10 ga.....per 100 lbs.	\$3 50
"Armco" 10 ga.....per 100 lbs.	4 00

### ONE PASS COLD ROLLED BLACK

No. 18-20.....per 100 lbs.	\$3 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 35
No. 30.....per 100 lbs.	4 45

### "ARMCO" GALVANIZED

"Armco" 24.....per 100 lbs.	\$6 15
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### GALVANIZED

No. 16.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 30.....per 100 lbs.	5 70

### BAR SOLDER

Warranted 50-50.....per 100 lbs.	\$40 50
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Commercial 45-55.....per 100 lbs.	37 50
Plumbers.....per 100 lbs.	34 50

### ZINC

In Slabs.....	\$ 8 50
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### SHEET ZINC

Cash Lots (600 lbs.).....	\$11 75
Sheet Lots.....	12 75

### BRASS

Sheets, Chicago base.....	17 1/2 c
Mill Base.....	17 c
Tubing, brazed base.....	26 1/2 c
Wire, base.....	18 c
Rods, base.....	15 1/2 c

### COPPER

Sheets, Chicago base.....	21 1/2 c
Mill Base.....	20 1/2 c
Tubing, seamless base.....	24 1/2 c
Wire, No. 9, B & S Ga.....	17 1/2 c
Wire, No. 10, B & S Ga.....	17 c
Wire, No. 11, B & S Ga.....	18 1/2 c
Wire, No. 8, B & S Ga. and heavier.....	17 c

## LEAD

American Pig.....	\$ 7 15
Bar.....	8 15

## TIN

Pig Tin.....per 100 lbs.	\$74 00
Bar Tin.....per 100 lbs.	75 00

## HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

### ASBESTOS

Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/2 c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$6 00 per roll

### BRUSHES

Hot Air Pipe Cleaning Bristle, with handle, each	\$0 85
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Flue Cleaning Steel only, each.....	1 25
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### BURRS

Copper Burrs only.....	40-5%
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### CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora.....per 100 lbs.	7 51

### CHIMNEY TOPS

Adams' Revolving	Wt. Doz.	Prize Doz.
4 in.....	21 lbs.	\$11 00
6 in.....	24 lbs.	11 50
7 in.....	30 lbs.	13 50
8 in.....	33 lbs.	15 00
9 in.....	51 lbs.	16 50
10 in.....	56 lbs.	18 00
12 in.....	66 lbs.	22 00
14 in.....	110 lbs.	36 00

### CLINKER TONGS

Front Rank, each.....	\$0 75
Per doz.....	8 40

### CLIPS

Damper Acme, with all tall pieces, per doz.....	\$1 25
Non Rivet tall pieces, per doz.....	25

### COPPERS—Soldering

Pointed Roofing	
3 lb. and heavier.....per lb.	40c
2 1/2 lb. ....per lb.	45c
2 lb. ....per lb.	48c
1 1/2 lb. ....per lb.	55c
1 lb. ....per lb.	60c

### CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B.....	Net
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### CUT-OFFS

Gal., plain, round or cor. rd. 26 gauge.....	30%
28 gauge.....	35%

### DAMPERS

"Yankee" Hot Air 7 inch, each 20c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each, 30c, doz.....	2 75
10 inch, each 32c, doz.....	3 00

### Smoke Pipe

7 inch, each.....	\$0 35
8 inch, each.....	40
9 inch, each.....	50
10 inch, each.....	60
12 inch, each.....	90

### Reversible Check

8 inch, each.....	\$ 56
9 inch, each.....	70

### Diamond Smoke Pipe

7 inch, doz.....	\$ 5 00
8 inch, doz.....	8 00
9 inch, doz.....	12 00
10 inch, doz.....	15 00

## Adams' Sheet Metal

7 inch, doz.....	\$ 1 60
8 inch, doz.....	2 30
9 inch, doz.....	2 60
10 inch, doz.....	3 50

## DIGGERS

Post Hole Iwan's Split Handle (Eureka) 4-ft. Handle...per doz.	\$14 00
7-ft. Handle...per doz.	36 00
Iwan's Hercules pattern, per doz.....	14 90

## EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes".....	60%

## ELBOWS

Conductor Pipe Galv., plain or corrugated, round flat Crimp. 28 Gauge.....	60%
26 Gauge.....	45%
24 Gauge.....	15%

## Galv. & Terne Steel

Plain Rd. and Rd. Corr.: 28 Ga. ....	60%
26 Ga. ....	45%
24 Ga. ....	15%

## Square Corrugated

No. 28 Gauge.....	50%
26 Gauge.....	35%

## Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated. Not nested.....	70 & 5%
Nested solid.....	70 & 5%

## Sq. Corr., A. & B. & Octagon:

28 Ga. ....	50%
26 Ga. ....	35%

## Portico

1", 1 1/2", 1 3/4".....	45%
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## Copper

16 oz., all designs.....	45%
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## Zinc—

All styles.....	60%
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## ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge, Doz.	
5-inch.....	\$1 25
6-inch.....	1 35
7-inch.....	1 75

## Special Corrugated

6-inch.....	\$1 00
7-inch.....	1 40

## Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue. 5-inch.....	\$1 75
6-inch.....	1 85
7-inch.....	2 15

## WOOD FACES—50% off list.

FENCE	
725-6-13 1/2% (100 rods).....	\$28 68
1948-6-14 1/2% (100 rods).....	48 62

## FILES AND RASPS

Heller's (American).....	50-10%
American.....	60-10%
Aranda.....	50%
Black Diamond.....	50%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	50%
Simonds.....	60%

## FIRE POTS

Clayton & Lambert's East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....	52%
West of above boundary.....	48%

## Geo. W. Diener Mfg. Co.

No. 02 Gasolene Torch, 1 qt. ....	\$ 5 55
No. 0250, Kerosene, or Gasolene Torch, 1 qt. ....	7 50
No. 10 Tinner's Furn. Square tank, 1 gal. ....	12 60
No. 15 Tinner's Furn. Round tank, 1 gal. ....	12 00
No. 21 Gas Soldering Furnace.....	3 60
No. 110 Automatic Gas Soldering Furnace.....	10 50

## Double Blast Mfg. Co.

Gasolene, Nos. 25 and 36.....	60%
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## Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis	30%
(Extra Discrt. for large quantities)	

## GALVANIZED WARE

Pails (Galv. after made), 10-qt. ....	\$2 12
Tubs (Galv. after made), No. 1.....	6 00
No. 2.....	6 85

## GLASS

Single Strength, A, 25-in. brackets.....	87%
Single Strength, A, 34 to 40-in. bracket.....	86%
Single Strength, A, all other brackets.....	86%
Double Strength, A, all sizes.....	86%

## HANGERS

Conductor Pipe Milcor Perfection Wire.....	25%
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## Eaves Trough

Milcor Eclipse Wire.....	15%
Milcor Triplex Wire.....	10%
Milcor Milwaukee Extension 10% Milcor Steel (galv. after forming) List.....	plus 12 1/2%
Milcor Selflock E. T. Wire, List.....	plus 50%

## HOOKS

Box V. & B. No. 1, each.....	\$0 26
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## Conductor

"Direct Drive" Wrought Iron for wood or brick.....	15%
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## Hay

V. & B. No. 1, each.....	\$0 26
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## HUMIDIFIERS

"Front-Rank," Automatic In single lots.....	50%
In lots of 10 or more.....	60 5%
In lots of 25 or more.....	50-1'
Vapor pans, etc., each.....	50%

## LIFTERS

Stove Cover Coppered.....per gro.	\$6 00
Alaska.....per gro.	4 75

## MALLETS

Tinners Hickory.....per doz.	\$3 25
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## MITRES

Galvanized steel mitres, 28 Ga. ....	70
26 Ga. ....	60-20

## NAILS

Cut Steel.....	\$4 35
Cut Iron.....	4 85

## Wire

Common.....	2 95
Cement Coated.....	2 95

(Continued on Page 36)

THE SATURDAY EVENING POST

June 24, 1927

## PROVED—by This Exacting Test that Crowds Years into Days

**Toncan Copper Mo-lyb-den-um Iron demonstrates its superior resistance to corrosive attack**

WHEN various tests of iron are subjected to a 2% hydrochloric acid solution they suffer a corrosive attack comparable to corrosion in the elements. This is the standard laboratory test used in the world industry to compare the ability of various metals to resist corrosion.

The charts above show accurate results of tests made, conducted with Toncan Copper Mo-lyb-den-um Iron as compared to other metals in the field. These tests have shown that less than 1% of its weight under months of violent corrosive attack, while comparative materials lost approximately 80%. More values of durability are of this value in the light of this test. It tells the story of Toncan's lasting quality.

When long and severe service is required, the architect and the sheet metal contractor are using Toncan for all sheet metal work on houses and buildings. To insure a long and profitable life for their production, makers of stoves, refrigerators, washing machines and other household appliances are using Toncan for electrical surfaces, even lighting and other recently noted parts.

If you are purchasing equipment for your home, be guided by the Toncan label. If you are a manufacturer of metal products, let us

show you how Toncan Iron will improve them. Write for our interesting Toncan book, "The Path to Prosperity."

Central Alloy Steel Corporation  
Massillon, Ohio

World's Largest and Only Quality Sheetmetal and Steel Products  
Makers of American Sheet Metal  
Refrigerators, Stoves, Washers, Dryers, Sewing Machines, Radios, etc.

**TONCAN**  
COPPER  
Mo-lyb-den-um  
IRON

This  
Trademark  
on  
Sheet Metal  
is a  
Guarantee  
of Quality  
and  
Long Life

So the public is informed through advertising in The Saturday Evening Post. Use Toncan Copper Mo-lyb-den-um Iron and increase your reputation, sales and profits.

EVERY galvanized sheet of Toncan Copper Mo-lyb-den-um Iron we make is stamped with the Toncan trademark. This is done for your protection and to give you the prestige that the use of Toncan conveys to your customers. Toncan advertisements, appearing on the page facing the inside back cover of The Saturday Evening Post every four weeks, are making Toncan more profit-

able for dealers. They are creating a ready acceptance in the public mind and confidence in the sheet metal contractor who uses this recognized super-iron.

Whether or not you are now handling Toncan Iron, you should have our latest book, entitled "Speeding Up Sheet Metal Profits." Tells many ways to increase your business. Send for a copy today.



CENTRAL ALLOY STEEL CORPORATION, MASSILLON, OHIO  
Makers of AGATHON ALLOY STEELS

Cleveland  
Syracuse

Detroit  
Philadelphia

Chicago  
Los Angeles

New York  
Tulsa

St. Louis  
Cincinnati

San Francisco  
Seattle

WORLD'S LARGEST AND MOST HIGHLY SPECIALIZED ALLOY STEEL PRODUCERS



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Fort Shelby Hotel	—		
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NETTING, POULTRY		ROOFING	
Galvanized before weaving	67½-5%	Best grade, slate surf. prepared	2 30
Galvanized after weaving	52½-5%	Best talc surfaced	2 65
		Medium talc surfaced	2 00
		Light talc surfaced	1 20
		Red Rosin Sheeting, per ton	57 00
PASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. barrel	\$16 00	7, ½x½, per gross	\$0 52
100-lb. barrel	8 75	No. 10, ¾x3/16, per gross	63
35-lb. pail	3 50	No. 14, ¾x¼, per gross	39
10-lb. bag	1 10		
5-lb. bag	60		
2½-lb. cartons	25		
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$22 00
Cor. Rd., Plain Rd. or Sq.		Lennox Throatless	
Galvanized		No. 18	25%
Crated and nested (all gauges)	75-2½%	Shear blades	10%
Crated and not nested (all gauges)	70-15%	(f. o. b. Marshalltown, Iowa.)	
Furnace Pipe		SHIELDS, REGISTER	
Double Wall Pipe and Fittings	50%	No. 1 "Gem" floor	\$12 00 doz.
Single Wall Pipe, Round		No. 2 "Gem" wall	6 00 doz.
Galvanized Pipe	50%		
Galvanized and Tin Fittings	50%		
SHOES			
Lead			
Per 100 lbs.	\$12 50		
Stove Pipe			
"Milcor" "Titelock" Uniform Blue Stove			
23 gauge, 5 inch U. C.	11 50		
23 gauge, 6 inch U. C.	12 25		
23 gauge, 7 inch U. C.	14 25		
30 gauge, 5 inch U. C.	10 50		
30 gauge, 6 inch U. C.	11 25		
30 gauge, 7 inch U. C.	13 25		
T-Joint Made up			
6-inch, 23 ga.	per doz. \$ 5.00		
SNIPS, TINNERS'			
All Zinc			
No. 11, all styles	60%		
POKERS, STOVE			
W'r't Steel, str't or bent	per doz. \$0 75		
Nickel Plated, coil handles	per doz. 1 10		
POKERS, FURNACE			
Each	\$0 50		
PULLEYS			
Furnace Tackle	per doz. \$0 60		
Furnace Screw (enameled)	per gro. 6 00		
	per doz. 75		
VENTILATING REGISTER			
Per gross	9 00		
Small, per pair	30		
Large, per pair	50		
PUTTY			
Commercial Putty, 100-lb			
Kits	\$3 40		
QUADRANTS			
Malleable Iron Damper	10%		
REDUCERS—Oval Stove Pipe			
Per Doz.			
7-8, 1 doz. in carton	\$2.25		
REGISTERS AND BORDERS—Baseboard, Floor and Wall.			
Cast Iron	20%		
Steel and Semi-Steel	40%		
Baseboard	40%		
Wall	40%		
Adjustable Ceiling Ventilators	40%		
Register Faces—Cast and Steel			
Japanned, Bronzed and Plated, 4x6 to 14x14	40%		
Large Register Faces—Cast	60%		
Large Register Faces—Steel	65%		
RIDGE ROLL			
Galv., Plain Ridge Roll	75-10-5%		
Galv., Plain Ridge Roll	75-10%		
Globe Finials for Ridge Roll	50%		
SQUARES			
Steel and Iron	Net		
(Add for bluing, \$3 per doz. net.)			
SQUARES			
Mitre	Net		
Try	Net		
Try and Bevel	Net		
Try and Mitre	Net		
Fox's	per doz. \$6 00		
Winterbottom's	10%		
STOPPERS, FLUE			
Common	per doz. \$1 10		
Gem, No. 1	per doz. 1 10		
Gem, flat, No. 3	per doz. 1 00		
VENTILATORS			
Standard	\$0 to 40%		
WIRE			
Plain annealed wire, No. 8, per 100 lbs.	\$3 05		
Galvanized barb wire, per 100 lbs.	3 90		
Wire Cloth—black painted, 12-mesh, per 100 sq. ft.	1 65		
Cattle Wire—galvanis'd catch weight spool, per 100 lbs.	2 65		
Galvanized Hog Wire, 80 rod spool, per spool	2 18		
Galvanized Plain Wire, No. 9, per 100 lbs.	3 40		
Stove Pipe, per stone	1 10		
WRINGERS			
No. 790, Guarantee	each \$5 10		
No. 770, Bicycle	each 4 70		
No. 670, Domestic	each 4 35		
No. 110, Brighton	each 3 70		
No. 750, Guarantee	each 5 10		
No. 740, Bicycle	each 4 70		
No. 22, Pioneer	each 3 40		
No. 2, Superb	each 2 65		



*A combination of many small improvements* results in a great elbow—the one with the Lupton trademark . . . Consider for instance, the Lupton graduated taper—a taper which extends 2½" up from the end. This feature permits a quick, easy joint that is positive and water-tight without solder. It permits faster and better work, especially in cramped corners. It saves hammer blows, soldering and extra work on every job . . . Use Lupton Elbows on your next roof job. You'll find them more profitable . . . *Specify them to your Jobber . . .*

**DAVID LUPTON'S SONS COMPANY, ALLEGHENY AVENUE  
AND TULIP STREET, PHILADELPHIA, PENNSYLVANIA**

When writing mention AMERICAN ARTISAN—Thank you!

# BUYERS' DIRECTORY

**Acetylene (Gas) Dissolved.**  
Prest-O-Lite Co., Inc.,  
New York, N. Y.

**Air Filters.**  
Reed Air Filter Co.,  
Louisville, Ky.

**Bale Ties.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Blowers.**  
Sturtevant Co., B. F., Boston, Mass.

**Bolts—Stove.**  
The Kirk-Latty Co.,  
Cleveland, Ohio  
Lamson & Sessions Co.,  
Cleveland, Ohio

**Brakes—Bending.**  
Dreis & Krump Mfg. Co.,  
Chicago, Ill.

**Brakes—Cornice.**  
Dreis & Krump Mfg. Co.,  
Chicago, Ill.

**Brass and Copper.**  
Copper & Brass Research As-  
sociation, New York  
Merchant & Evans Co.,  
Philadelphia, Pa.

**Cans—Garbage.**  
Osborn Co., The J. M. & L. A.,  
Cleveland, Ohio

**Castings—Malleable.**  
Fanner Mfg. Co., Cleveland, Ohio

**Ceilings—Metal.**  
Friedley-Voshardt Co.,  
Chicago, Ill.  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.  
Wheeling Corrugating Co.,  
Wheeling, W. Va.

**Chaplets.**  
Fanner Mfg. Co., Cleveland, Ohio

**Chain—Sash.**  
Parker-Kalon Corp.,  
New York, N. Y.

**Chimney Tops.**  
Ventilator Co.,  
Lewisburg, Pa.

**Check Drafts.**  
Teela Sheet Metal Co.,  
Oshkosh, Wis.

**Cleaners—Furnace.**  
Sturtevant Co., B. F., Boston, Mass.

**Cleaners—Suction.**  
Sturtevant Co., B. F., Boston, Mass.

**Clinker Tongs.**  
L. J. Mueller Furnace Co.,  
Milwaukee, Wis.

**Clips—Roofing.**  
Wm. Pfeiffer, New York, N. Y.

**Coal Chutes.**  
Majestic Co., The,  
Huntington, Ind.

**Copper.**  
Copper & Brass Research As-  
sociation, New York

**Cornices.**  
Friedley-Voshardt Co.,  
Chicago, Ill.

**Cut-offs—Rain Water.**  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**Damper Clips.**  
L. J. Mueller Furnace Co.,  
Milwaukee, Wis.  
Charlestown, Mass.

**Diffuser—Air Duct.**  
Aeolus-Dickinson Co.,  
Chicago, Ill.

**Doors—Metal.**  
Lupton's Sons Co., David,  
Philadelphia, Pa.

**Drive Screws—Hardened Metallic.**  
Parker-Kalon Corp.,  
354 West 13th St., New York

**Eaves Trough.**  
Barnes Zinc Products Co.,  
Chicago, Ill.

**Berger Bros. Co.,**  
Philadelphia, Pa.

**Berger Co., L. D.,**  
Philadelphia, Pa.

**Lupton's Sons Co.,**  
Philadelphia, Pa.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**New Jersey Zinc Sales Co.,**  
The,  
New York, N. Y.

**Wheeling Corrugating Co.,**  
Wheeling, W. Va.

**Elbows and Shoes—Conductor.**  
Barnes Zinc Products Co.,  
Chicago, Ill.

**Dieckmann Co., Ferdinand,**  
Cincinnati, Ohio  
Double-Duty Mfg. Co., Aurora, Ill.  
Lupton's Sons Co., David,  
Philadelphia, Pa.  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**Wood Faces—Cold Air.**  
American Wood Register Co.,  
Plymouth, Ind.

**Eaglesfield Ventilator Co.,**  
Indianapolis, Ind.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Fences.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Fittings—Conductor.**  
Barnes Zinc Products Co.,  
Chicago, Ill.

**Flue Thimbles.**  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**Furnace Cement—Asbestos.**  
Buckeye Products Co., The,  
Cincinnati, Ohio

**Connors Paint Mfg. Co., Wm.,**  
Troy, N. Y.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Pecora Paint Co., Philadelphia, Pa.**

**Furnace Cement—Liquid.**  
Technical Products Co.,  
Pittsburgh, Pa.

**Furnace Cleaners.**  
Sturtevant Co., B. F., Boston, Mass.

**Furnace Fans.**  
A. H. Robinson Company,  
Cleveland, Ohio

**Sturtevant Co., B. F., Boston, Mass.**

**Warm Air Furnace Fan Co., The,**  
Cleveland, Ohio

**Furnace Rings.**  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**Walworth Run Fdy. Co.,**  
Cleveland, Ohio

**Furnaces—Gas.**  
Calkins & Pearce, Columbus, Ohio

**Furnaces—Warm Air.**  
American Furnace Co.,  
St. Louis, Mo.

**American Foundry & Furnace**  
Co.,  
Bloomington, Ill.

**Brillion Iron Works,**  
Brillion, Wis.

**Calkins & Pearce, Columbus, Ohio**

**Colburn Heater Co., Chicago, Ill.**

**Floral City Heater Co.,**  
Monroe, Mich.

**Forest City Fdy. & Mfg. Co.,**  
Cleveland, Ohio

**Henry Furnace & Fdy. Co.,**  
Cleveland, Ohio

**Hess-Snyder Co., Massillon, Ohio**

**Homer Furnace Co.,**  
Coldwater, Mich.

**International Heater Co.,**  
Utica, N. Y.

**Keith Furnace Co.,**  
Des Moines, Ia.

**Lamneck Co., W. E.,**  
Columbus, Ohio

**Langenberg Mfg. Co.,**  
St. Louis, Mo.

**Lennox Furnace Co.,**  
Marshalltown, Ia.; Syracuse, N. Y.

**Liberty Foundry Co.,**  
St. Louis, Mo.

**Majestic Co., The,**  
Huntington, Ind.

**Marshalltown Heater Co.,**  
Marshalltown, Iowa

**May-Flebeiger Furnace Co.,**  
Newark, Ohio

**Meyer Furnace Co., The,**  
Peoria, Ill.

**Monitor Furnace Co.,**  
Cincinnati, Ohio

**Mt. Vernon Furnace & Mfg. Co.,**  
Mt. Vernon, Ill.

**Mueller Furnace Co., L. J.,**  
Milwaukee, Wis.

**Robinson Furnace Co.,**  
Chicago, Ill.

**Robinson Furnace Co., A. H.,**  
Cleveland, Ohio

**Rybolt Heater Co., Ashland, Ohio**

**Security Stove & Mfg. Co.,**  
Kansas City, Mo.

**Standard Furnace & Supply Co.,**  
Omaha, Neb.

**St. Louis Heating Co.,**  
St. Louis, Mo.

**Success Heater Mfg. Co.,**  
Des Moines, Iowa

**Thomas & Armstrong Co.,**  
London, Ohio

**Thatcher Co.,**  
Chicago, Ill.

**XXth Century Heating & Vent-  
ilating Co.,**  
Akron, Ohio

**Ulca Heater Co.,**  
Utica, N. Y.

**Waterman-Waterbury Co.,**  
Minneapolis, Minn.

**Western Steel Products Co.,**  
Duluth, Minn.

**Wise Furnace Co.,**  
Akron, Ohio

**Garages—Metal.**  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**The Thomas & Armstrong Co.,**  
London, Ohio

**Trachte Brothers Co., Inc.,**  
Madison, Wis.

**Gas (Acetylene) Dissolved.**  
Prest-O-Lite Co., Inc.,  
New York, N. Y.

**Gas (Nitrogen).**  
Linde Air Products Co.,  
New York, N. Y.

**Gas (Oxygen).**  
Linde Air Products Co.,  
New York, N. Y.

**Glass—Wire.**  
Lupton's Sons Co., David,  
Philadelphia, Pa.

**Grilles.**  
Diamond Mfg. Co., Wyoming, Pa.  
Harrington & King Perforating  
Co., Chicago, Ill.

**Hart & Cooley Co.,**  
New Britain, Conn.

**Tuttle & Bailey Mfg. Co.,**  
Chicago, Ill.

**United States Register Co.,**  
Battle Creek, Mich.

**Grilles—Store Front.**  
Tuttle & Bailey Mfg. Co.,  
Chicago, Ill.

**Guards—Machine and Belt.**  
Harrington & King Perforating  
Co., Chicago, Ill.

**Handles—Boiler.**  
Berger Bros. Co.,  
Philadelphia, Pa.

**Handles—Soldering Iron.**  
Hyro Mfg. Co., New York, N. Y.

**Hangers—Eaves Trough.**  
Berger Co., L. D.,  
Philadelphia, Pa.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Heaters—Cabinet.**  
Majestic Co., The,  
Huntington, Ind.

**Mueller Furnace Co., L. J.,**  
Milwaukee, Wis.

**Waterman-Waterbury Co.,**  
Minneapolis, Minn.

**Heaters—Gas.**  
Calkins & Pearce, Columbus, Ohio

**Heaters—School Room.**  
Floral City Heater Co.,  
Monroe, Mich.

**International Heater Co.,**  
Utica, New York

**Meyer Furnace Co., The,**  
Peoria, Ill.

**L. J. Mueller Furnace Co.,**  
Milwaukee, Wis.

**Standard Furnace & Supply Co.,**  
Omaha, Neb.

**Waterman-Waterbury Co.,**  
Minneapolis, Minn.

**Hooks—Conductor.**  
Berger Co., L. D.,  
Philadelphia, Pa.

**Hotels.**  
Fort Shelby Hotel,  
Detroit, Mich.

**Humidifiers.**  
Automatic Humidifier Co.,  
Waterloo, Iowa

**L. J. Mueller Furnace Co.,**  
Milwaukee, Wis.

**Robinson Furnace Co.,**  
Chicago, Ill.

**Lath—Expanded Metal.**  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.

**Machines—Crimping.**  
Bertsch & Co.,  
Cambridge City, Ind.

**Machinery—Culvert.**  
Bertsch & Co.,  
Cambridge City, Ind.

**Machines—Tinsmiths.**  
Bertsch & Co.,  
Cambridge City, Ind.

**Chicago Elbow Machine Co.,**  
Oak Park, Ill.

**Dreis & Krump Mfg. Co.,**  
Chicago, Ill.

**Marshalltown Mfg. Co.,**  
Marshalltown, Iowa

**Osborn Co., The J. M. & L. A.,**  
Cleveland, Ohio

**Peck, Stow & Wilcox Co.,**  
Southington, Conn.

**Ryerson & Son, Inc.,**  
Chicago, Ill.

**Whitney Mfg. Co., W. A.,**  
Rockford, Ill.

**Whitney Metal Tool Co.,**  
Rockford, Ill.

**Mailing Lists.**  
R. L. Polk Co., Detroit  
Ross-Gould Co., St. Louis, Mo.

**Mandrels.**  
Hyro Mfg. Co., New York, N. Y.

**Metals—Perforated.**  
Diamond Mfg. Co., Wyoming, Pa.  
Harrington & King Perforating  
Co., Chicago, Ill.

**Miters.**  
Friedley-Voshardt Co.,  
Chicago, Ill.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Miters—Eaves Trough.**  
Barnes Zinc Products Co.,  
Chicago, Ill.

**Lupton's Sons Co., David,**  
Philadelphia, Pa.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Nails—Wire.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Nickel—Zinc.**  
Apollo Metal Works,  
La Salle, Ill.

**Nitrogen (Gas).**  
Linde Air Products Co.,  
New York, N. Y.

**Ornaments—Sheet Metal.**  
Friedley-Voshardt Co.,  
Chicago, Ill.

**Gerock Bros. Mfg. Co.,**  
St. Louis, Mo.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Oxygen (Gas).**  
Linde Air Products Co.,  
New York, N. Y.

**Paint.**  
Connors Paint Mfg. Co., Wm.,  
Troy, N. Y.

**Pecora Paint Co.,**  
Philadelphia, Pa.

**Patterns—Furnace & Stove.**  
Cleveland Castings Pattern Co.,  
Cleveland, Ohio

**Quincy Pattern Co., Quincy, Ill.**

**Vedder Pattern Works,**  
Troy, N. Y.

**Pipe and Fittings—Furnace.**  
Henry Furnace & Fdy. Co.,  
Cleveland, Ohio

**Lamneck Co., W. E.,**  
Columbus, Ohio

**Meyer & Bro. Co., F., Peoria, Ill.**

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Mueller Furnace Co., L. J.,**  
Milwaukee, Wis.

**Osborn Co., The J. M. & L. A.,**  
Cleveland, Ohio

**Robinson Furnace Co.,**  
Chicago, Ill.

**Standard Furnace & Supply Co.,**  
Omaha, Neb.

**Pipe and Fittings—Stove.**  
Meyer & Bro. Co., F., Peoria, Ill.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**Pipe—Conductor.**  
Barnes Zinc Products Co.,  
Chicago, Ill.

**Berger Bros. Co.,**  
Philadelphia, Pa.

**Dieckmann Co., Ferdinand,**  
Cincinnati, Ohio

**Friedley-Voshardt Co.,**  
Chicago, Ill.

**Lupton's Sons Co., David,**  
Philadelphia, Pa.

**Milwaukee Corrugating Co.,**  
Milwaukee, Wis.

**New Jersey Zinc Sales Co., The,**  
New York, N. Y.

**Wheeling Corrugating Co.,**  
Wheeling, W. Va.

**Wheeling Metal & Mfg. Co.,**  
Wheeling, W. Va.



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THE BEST BRAKE FOR ALL PURPOSES: Most Durable, Easiest Operated, Low in Price; Made in All Lengths and to Bend All Gauges of Metal. Over 23,000 in use.

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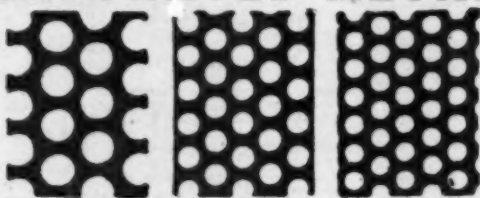
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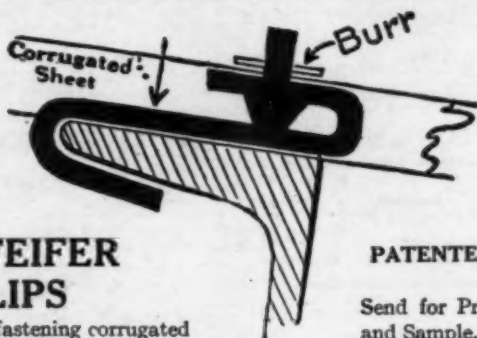
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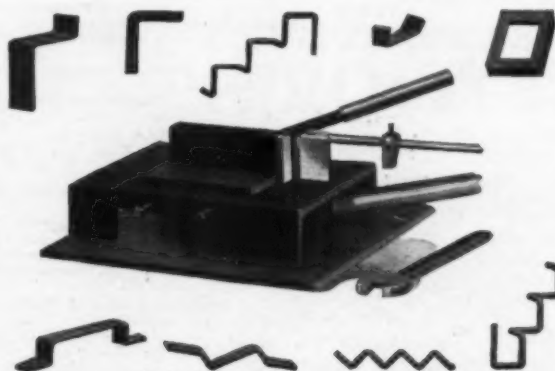
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Whitney Metal Tool Co.,  
Rockford, Ill.  
Whitney Mfg. Co.,  
Rockford, Ill.

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Majestic Co.,  
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Robinson Furnace Co.,  
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Milwaukee Corrugating Co.,  
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Chicago, Ill.  
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Philadelphia, Pa.  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.  
Osborn Co.,  
Cleveland, Ohio  
Ryerson & Son, Inc.,  
Chicago, Ill.  
Wheeling Corrugating Co.,  
Wheeling, W. Va.

**Roofing—Tin.**  
Taylor Co.,  
Philadelphia, Pa.  
Wheeling Corrugating Co.,  
Wheeling, W. Va.

**Roofing—Zinc.**  
New Jersey Zinc Sales Co.,  
New York, N. Y.

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Hart & Cooley Co.,  
New Britain, Conn.

**Sal-Ammoniac.**  
Special Chemicals Co.,  
Waukegan, Ill.

**Schools—Sheet Metal Pattern Drafting.**  
St. Louis Technical Institute,  
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National Heatercraft Institute,  
Peoria, Ill.  
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St. Louis, Mo.

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Parker-Kalon Corp.,  
354 West 13th St., New York

**Screws—Hardened Self-Tapping.**  
Parker-Kalon Corp.,  
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**Screens—Perforated Metal.**  
Harrington & King Perforating Co.,  
Chicago

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Double-Duty Mfg. Co.,  
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Marshalltown Mfg. Co.,  
Marshalltown, Iowa  
Peck, Stow & Wilcox Co.,  
Southington, Conn.  
Ryerson & Son, Inc.,  
Chicago, Ill.  
Unishear Co.,  
New York, N. Y.  
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Wheeling Metal & Mfg. Co.,  
Wheeling, W. Va.

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Parker-Kalon Corp.,  
354 West 13th St., New York

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American Rolling Mill Co.,  
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Central Alloy Steel Corp.,  
Massillon, Ohio  
Inland Steel Co.,  
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Philadelphia, Pa.  
Milwaukee Corrugating Co.,  
Milwaukee, Wis.  
Osborn Co.,  
Cleveland, Ohio  
Ryerson & Son, Inc.,  
Chicago, Ill.  
Taylor Co.,  
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**Sheets—Iron.**  
American Rolling Mill Co.,  
Middletown, Ohio  
Central Alloy Steel Corp.,  
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Merchant & Evans Co.,  
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Chicago, Ill.

**Roofing—Steel—Lead Coated.**  
Wheeling Metal & Mfg. Co.,  
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Merchant & Evans Co.,  
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New Jersey Zinc Sales Co.,  
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Milwaukee Corrugating Co.,  
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Wheeling Corrugating Co.,  
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Wheeling Metal & Mfg. Co.,  
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Diener Mfg. Co.,  
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Clayton & Lambert Mfg. Co.,  
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Diener Mfg. Co.,  
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Double Blast Mfg. Co.,  
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St. Louis, Mo.

**Soldering Supplies.**  
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Osborn Co.,  
Cleveland, Ohio  
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Detroit, Mich.  
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Chicago, Ill.  
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Arex Company,  
Chicago, Ill.  
Aeolus Dickinson Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Friedley-Voshardt Co.,  
Chicago, Ill.  
Kernchen Co.,  
Chicago, Ill.  
Lupton's Sons Co.,  
Philadelphia, Pa.  
Milwaukee Corrugating Co.,  
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Royal Ventilator Co.,  
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New York, N. Y.  
Sturtevant Co.,  
Boston, Mass.

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Lupton's Sons Co.,  
Philadelphia, Pa.

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American Steel & Wire Co.,  
Chicago, Ill.

**Wire Hoops.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Wire Rope.**  
American Steel & Wire Co.,  
Chicago, Ill.

**Zinc.**  
Apollo Metal Works,  
La Salle, Ill.

**Merchant & Evans Co.,**  
Philadelphia, Pa.

**New Jersey Zinc Co.,**  
New York, N. Y.

**Zinc—Polished.**  
Apollo Metal Works,  
La Salle, Ill.



## WANTS AND SALES

Any yearly subscriber to AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

## BUSINESS CHANCES

**Lightning Rods**—Dealers who are selling Lightning Protection will make money by writing us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield Wisconsin.

Would you pay three thousand dollars for four thousand five hundred dollars' worth of plumbing, heating and sheet metal stock, tools, fixtures and equipment, located in eastern Iowa, which is doing an annual business ranging from seventeen to twenty-four thousand dollars? If so and you want to do business write B-61, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

Wanted—Partner in a good going, established sheet metal and furnace business. Need a partner to help on sales, as well as the mechanical end of the business. The business will bear close investigation. For further information call or write C. A. Fitch, 113 W. Jackson Street, Millersburg, Ohio. 25-3t

A splendid opportunity for a first class roofer in all branches to buy half interest in a good sheet metal business. In the best city in Florida. Must know how to figure from blue prints. Address B-62, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

For Sale—Bargain on a good paying business. Property included 90 ft. front on Broadway by 120 ft. Full stock of new and second hand furniture, hardware, etc. Population of town 25,000. Address Eckhard Merc. Co., 512 E. Broadway, Alton, Illinois. 26-3t.

For Sale—Sheet metal and warm air furnace shop in Northern Missouri town. Ten thousand population. Good location. Cheap rent. Stock, tools and fixtures about \$1,200. Address B-65, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 1-3t.

For Sale—Tin shop. Good Kansas town. 5,000 inhabitants. Good reason for selling. Priced right and small amount capital required to handle. Address B-59, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

Fully equipped sheet metal and roofing shop, also Reo truck. Will give lease on shop. The shop is located on state highway, 4 car lines and 2 bus lines pass the place. Address E. L. Gibson, 947 West 8th Street, Cincinnati, Ohio. 1-3t.

Want to trade a bungalow at St. Paul, Minnesota, for a hardware store. Address B-57, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

Wanted—To hear from owner hardware store for sale. Cash price, particulars. D. F. Bush, Minneapolis, Minnesota. 26-3t.

## SITUATION WANTED

Situation Wanted—By heating engineer with a thorough knowledge of furnace manufacturing and selling. Know what the dealer wants and how to open and build new accounts, also how to build and hold a producing sales organization. Address B-54, care American Artisan, 620 South Michigan Avenue, Chicago, Illinois. 25-3t

## SITUATION WANTED

Situation Wanted—By first-class tinner and furnace man. Can do inside and outside work. 25 years at the trade. Nothing but steady job the year around. Am married. Can do anything that comes in any tin shop. Address W. J. Mack, 106½ East Main Street, Saint Charles, Illinois. 25-5t

Situation Wanted—Young married man with 6 years' experience in sheet metal and furnace work. Also can do slate and tile roofing. Must be steady position. Qualifications and experience on request. High school graduate. Address B-58, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

Situation Wanted — By sheet metal worker with ten years' experience, who can work inside and outside, also make patterns and read blue prints. Age 32. Must be steady position with year around work. Address B-63, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

Situation Wanted—By an all around sheet metal worker. Plumber and furnace man. Can come at once. State hours and wages in first letter. Best of references given. Address—B-46, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 24-3t.

Situation Wanted—By capable mechanic in sheet metal shop as foreman or manager; also production man in sheet metal department of furnace manufacturer. Address B-66, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 1-3t.

Situation Wanted — By middle aged man. A-1 sheet metal worker, on cornice, skylight and ventilation. Experience in all classes of sheet metal work. Absolutely reliable. Address Dan Coleman, 1524½ Broadway, Mattoon, Illinois. 1-3t.

Situation Wanted—Position as foreman or layout man. Experienced on all classes of light and heavy sheet metal work. Absolutely reliable. 42 years of age. Address—B-44, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 24-3t.

Situation Wanted—By middle aged tinner and furnace man. Good mechanic and wishes steady position in Oregon or Washington states only. Address B-60, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t.

Situation Wanted — By middle-aged married man. Combination plumber and sheet metal worker. Address B-55, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 25-3t

Situation Wanted—By Illinois licensed plumber. 19 years' experience. Married. Can do steam and hot water heating. A-1 mechanic. Address Plumber, 724 Main Street, Apt. 4, Davenport, Iowa. 25-3t

## HELP WANTED

Wanted — A combination sheet metal worker and plumber. Cannot use a "slow poke" or booze fighter. Will guarantee a steady job to the right man. This is an ideal country town of 1,600 people with good schools and churches. Address Sterling Service Shop, Mt. Sterling, Ohio. 1-3t

Wanted — Two first-class tanners and furnace men that can complete a job in a first-class manner from start to finish. Must be sober and reliable. State wages wanted in your letter. Address B-56, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 25-3t

Wanted—We have an opening for a heating engineer with pep and ability to sell. State qualifications, experience and salary expected in first letter. Address Meyers Fuel Saver Co., Inc., 314 West Milwaukee Street, Janesville, Wisconsin. 26-3t

Wanted—Party with sales and mechanical ability to take local management of combination plumbing and tin shop. Must have \$500 to invest in business. This is a rare opportunity. Illinois Pblg. & Htg. Company, Du Quoin, Illinois. 25-3t

Wanted—At once, A-1 sheet metal worker and furnace installer. Union shop. Address Robert F. Boehm, 2611 64th St., Kenosha, Wisconsin. 26-3t.

## HELP WANTED

Wanted — A first-class sheet metal worker; knowledge of plumbing preferred. One capable of doing anything that comes in an ordinary shop, gutter, blowpiping, roofing, etc. Must be capable of doing good work in reasonable length of time. Give references, experience and wages. Address B-64, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 26-3t

Wanted—At once, all around man to do sheet metal and some plumbing such as comes in a country shop. Wages \$30.00 per week year around. Address O. L. Doward, Box 115, Mount Morris, Illinois. 1-3t.

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ADVERTISING ASSOCIATION  
420 Lexington Ave. New York, N.Y.

Gilbert T. Hodges, General Chairman  
On-to-Denver Committee



**TINNERS' TOOLS**

Wanted—An eight or ten foot hand power cornice brake. Must be in good condition. State name of maker. Address Geo. W. Dollman, Sharon Avenue, Glendale, Ohio. 1-3t.

Wanted—One used 36" adjustable bar folder. Address H. E. Clutterham, Sycamore, Illinois. 25-3t

**BOOKS**

The Ventilation Handbook, by Charles L. Hubbard. A practical book designed to cover the principles and practice of ventilation as applied to furnace heating; ducts, flues and dampers for gravity heating; fans and fan work for ventilation and hot blast heating by means of a comprehensive series of questions, answers and very plain descriptions easy to understand. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5½x9 inches. Price \$2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches giving all necessary guidance in fan work blower and separator construction. 159 pages, 6x8. 51 figures. Cloth. \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Sheet Metal Duct Construction, by Neubecker—A treatise on the construction and erection of heating and ventilating ducts, including the cutting and forming of the metal, the laying out of the elbows, etc. A practical expert wrote this book and you'll find that it covers the subject thoroughly. By William Neubecker. Bound in cloth, 194 pages, 217 illustrations. Size 5½x8½ inches. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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HUBERT E. PECK  
Patent Attorney

Barrister Bldg., WASHINGTON, D. C.

**WANTED****MANAGERS AND SALESMEN**

We are in need of two managers and three salesmen to sell Round Oak Furnaces. Call or write, 711 South Wells Street, Chicago, Illinois. Round Oak Heating Company. 25-1t

**SPECIAL NOTICES****WANTED**

Experienced Parlor Furnace Salesman wanted for Ohio. Must have successful record in this line. The Waterman-Waterbury Company, Minneapolis, Minnesota. 21-2t.

**SITUATION WANTED**

I am interested in a new opportunity with a manufacturer of hardware, sheet metal or furnace fitting and supplies, as I have resigned my position as general traveling sales representative with Charles Johnson Co., Inc. Address F. G. Carpenter, 6978 Greenview Ave., Chicago, Illinois. 22-2t.

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KERNCHEN COMPANY

Ventilating Engineers  
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SUPPLY your next job with "K.S.V." and you never will have a complaint. Complete stock on hand for prompt shipment.

Write to-day for complete data and prices

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100 Rests (25 sets of 4)

Costs you \$5.00

You get \$12.00

Retail 50c set of 4

Post Prepaid—anywhere

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EFFICIENT IN EXHAUST

Write for prices.

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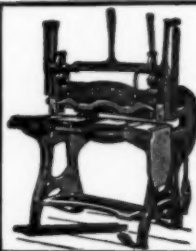
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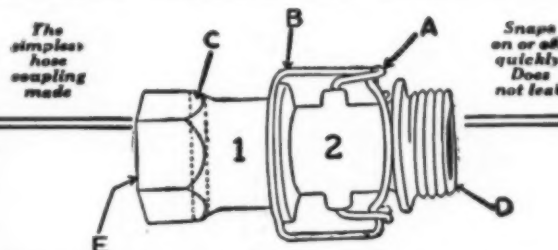
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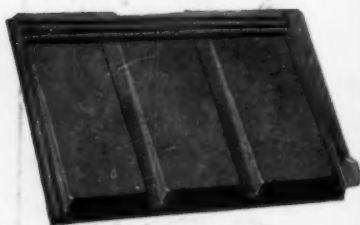
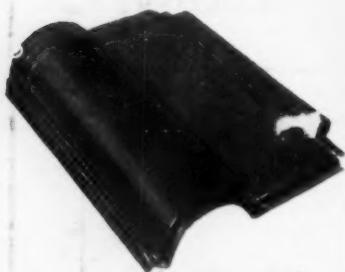
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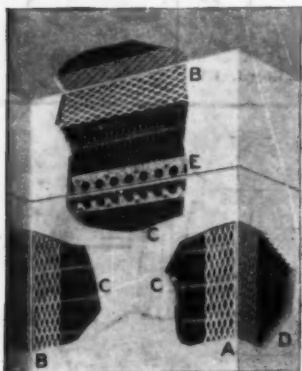
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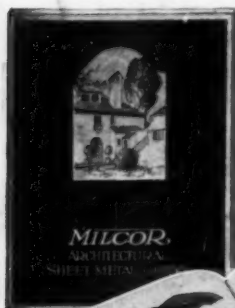
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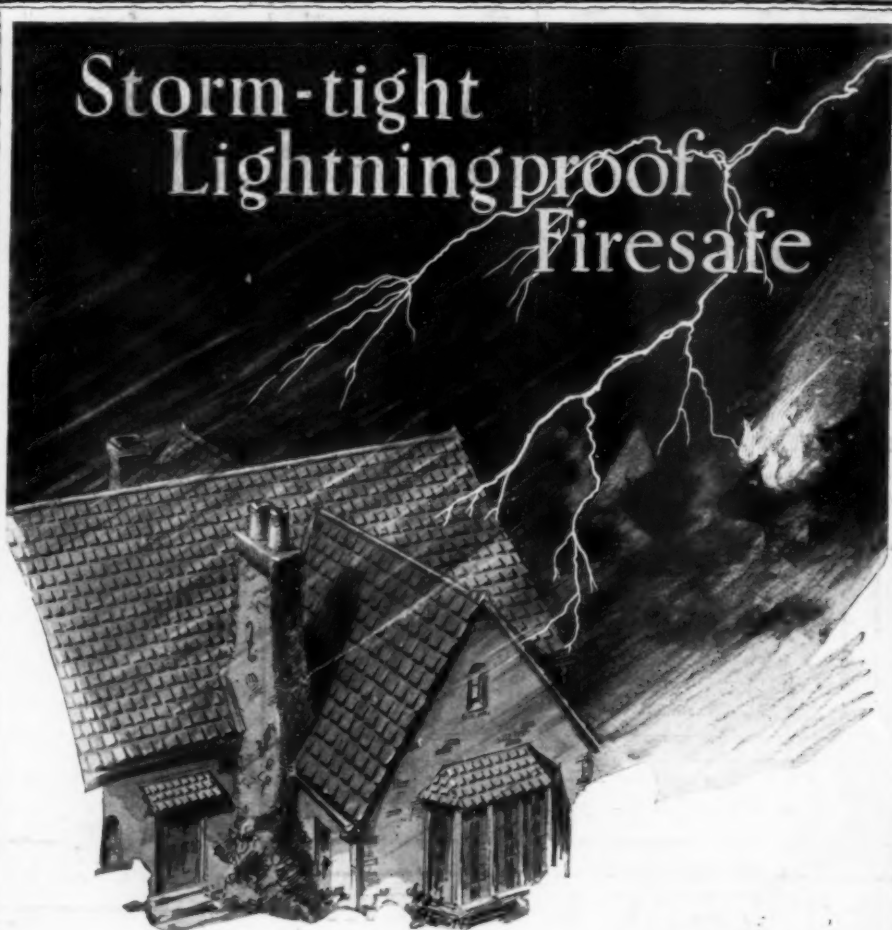
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